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ETHNIC FERTILITY DIFFERENTIALS IN EDMONTON

by

© RODERIC PAUL BEAUJOT

A THESIS

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ABSTRACT

The present thesis is an investigation into the existence and scope of ethnic fertility differences in a sample of Edmonton females. The data are taken from the Growth of Alberta Families Study which interviewed 1,045 women during the period November 1973 to February 1974.

Ethnicity here refers to national or cultural origins. In view of the sample sizes obtained, the eight following ethnic categories are used: British, German, French, Irish, Other Western European, Ukrainian, Other Eastern European and Other. Two fertility measures are adopted as dependent variables. These are current family size and expected family size. The effects of age and marital status have been systematically removed from these variables by measuring each woman's fertility as a deviation from the mean for her age and marital status.

Once the ethnic fertility differentials are established, the basic plan of the thesis is to determine whether they withstand three explanatory perspectives. These perspectives are attempts to account for the differentials through sets of background factors, assimilation factors, and variables of an economic model. The methodology involves the use of crosstabulations, multiple classification analysis and multiple regression analysis in order to observe the influence of these control variables on the fertility of the various ethnic groups.

The consideration of background factors provides a test of the characteristics hypothesis. This hypothesis would claim that ethnic fertility differences are mostly a reflection of differences along other basic factors. With some exceptions, it is found that adjustments for background factors (religion, residence in youth, education, occupation and income) only introduce minor changes in the ethnic

fertility deviations, and that these factors have largely similar influences on the fertility of the various ethnic groups.

The consideration of assimilation (generation, language use and intermarriage) permits an analysis of some of the dynamics of ethnicity. It also makes it possible to test the particularized ideology hypothesis. That is, we can determine whether lower levels of assimilation accentuate the fertility behaviour that is typical of a given ethnic group. Assimilation is found to have more influence on ethnic fertility deviations than the other two sets of variables. On the other hand, equal levels of assimilation would change the rank orderings of ethnicities with respect to fertility without eliminating ethnic fertility differences. Assimilation factors often do not have equivalent effects on the fertilities of the various ethnic groups. This interaction provides support for the particularized ideology hypothesis.

The variables of the economic model (relative preferences for children, direct and indirect costs of children, and level of living) are introduced to determine whether ethnic fertility differences are due to ethnic differences on these variables. Though these factors account for more of the fertility variation than the other two sets of factors, they are found to have somewhat equivalent effects in the various ethnic groups. Ethnic fertility differences generally cannot be attributed to differences along these variables of the economic model.

The general conclusion of the thesis is that ethnic differentials are remarkably hearty. Though the differences are not particularly large, they tend to endure despite similarities in other characteristics and to be surprisingly resistant to assimilation processes.

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CHAPTER 1

INTRODUCTION

1.1 The problem

The objective of this thesis is to examine ethnic group differences in the fertility behaviour of Edmonton females. The essential questions under consideration are the following: Does ethnicity make a difference with respect to fertility? If so, why does it make a difference and how much difference does it make?

The various "national origin" groups which have come to form the Canadian population have varied on a large number of behavioural characteristics, not the least of which is fertility. With the increasing Canadian orientation to multi-culturalism, it is of interest to determine the extent to which this variation has been retained and the factors that might be seen as sources of the differentials. Ultimately, the interest is in understanding the fertility differences by which the ethnic mixture of future generations will largely be determined.

The study of differentials such as these has a central place in the science of demography. It is through the search for differences that one is able to identify which variables are important in the understanding of given phenomena. The main objective of any scientific analysis is the identification of the determinants or causal factors involved in the processes under study. One way to locate these factors or determinants is through the examination of subgroup differences (Goldscheider, 1971: 226). This examination brings the researcher one step closer to the formulation of a theory that would fit the observed differentials or that would explain the variation

under consideration. The study of subgroup differences also has practical utility in the prediction of future levels of a given variable. Assuming that the differentials will continue to operate in the same manner, one can predict overall changes in the dependent variable on the basis of projected changes in the independent variables along which a phenomenon is differentiated. Especially in a subject area like that of fertility where the complete causal mechanisms are far from being established, it is important to continue in the search for and analysis of relevant differentials.

The data used in this thesis are taken from the Growth of Alberta Families Study (GAFS). This is a fertility study which obtained completed interviews from a sample of 1045 Edmonton women in the period November 1973 to February 1974. These data are further described in Section 2.3.

Ethnicity is operationalized in the same ways as in the recent Canadian censuses: "to what ethnic or cultural group did you or your ancestor (on the male side) belong on coming to this continent?". Though this definition is not without problems (see Ryder, 1955), it has generally proven to be a useful dimension on which to divide the Canadian population. Given the limitations of sample size, the GAFS respondents were divided into the eight following ethnic groups: British (English, Scottish and Welsh), German, French, Irish, Other Western European, Ukrainian, Other Eastern European and Other. The above operational definition is applied in the analysis. However, in the literature review, ethnicity is occasionally defined more broadly to also include racial and religious subgroups.

The remainder of this chapter will be taken up by the following topics: rationales that have been proposed for the understanding of ethnic fertility differences; an outline of the thesis; an examination of the uniqueness of the Canadian situation with respect to the problem under consideration; and an introduction to the history of Canadian fertility.

1.2 Approaches to the explanation of the relevance of ethnicity to fertility

This author would tend to support the position taken by Davis (1959: 312-314), that advance is generally made in demography not through attempts to develop theory but through the pursuit of particular problems with all the conceptual and empirical tools that can be found. With that backdrop, we will proceed to elaborate on some "rationales" that come through the literature regarding the questions at issue: Should ethnicity make a difference? Why? What kind of difference?

First there are a number of authors who would propose that in a modern urban society, ethnic origin is unimportant to the understanding of behavioural differences. Thus Park (1926) sees a world in which increasing exchanges bring about participation in a common life. For Park, the "race relations cycle" leads irreversibly to assimilation. Certain restrictions or barriers may slacken the tempo of this process or even halt it for a time but cannot change its direction. Elsewhere, Park (1939) emphasizes that there will still be diversity in modern populations but he proposes that it will be based on differences of occupation and class rather than inheritance and race.

Reflecting on the Canadian situation, Keyfitz (1947) suggests a similar orientation. He admits that some groups have remained differentiated: the Dukhobors of British Columbia, the Mennonites of southern Manitoba and the Scots of Cape Breton. But more generally, he argues that the English speaking populations of large cities are attached to groups that cut across lines of pre-American background while in rural areas "neighborhood" rather than "common ancestry" is the unifying force. Thus "the origin concept becomes merely formal" (idem, p. 158).

In his study of ethnic groups in southern Alberta, Palmer (1972) emphasizes the extent to which assimilation has occurred: "Social mobility, intermarriage and acculturation have proceeded much too rapidly among all ethnic groups to permit the vertical mosaic to remain intact" (idem, p. 258). He suggests that the future will see a continued decrease of ethnic diversity. Studying the group settlement of ethnic communities in Western Canada, Dawson (1936: 380) also speaks of an "inevitable tide" of assimilation.

This general perspective is also at the basis of the Indianapolis fertility study of 1941. The sample consisted of Protestant, educated, native-born whites of a "typical" American city. The study focused on this particular subpopulation because "it was believed that this group was setting the fertility pattern to which other population groups would eventually conform" (Kiser, 1955: 98 as quoted in Goldscheider, 1971: 275).

Though these authors do not necessarily address themselves directly to the question of fertility, the normal outcome of this line of reasoning is that fertility differentials by ethnicity will soon disappear. As exchanges take place on a wider scale, and as urbanization continues, ethnicity loses its distinguishing characteristics and the population becomes differentiated on other dimensions. Remaining ethnic differences would be but a "cultural lag" whose imminent disappearance is expected.

On the other hand, Freedman (1962: 225) is critical of what he calls "the erroneous view of urban society" wherein secularizing influences would bring on the disappearance of ethnic and religious differentials. Glazer and Moynihan (1963: v) have a similar view: "the notion that the intense and unprecedented mixture of ethnic and religious groups in American life was soon to blend into a homogeneous end product has outlived its usefulness and also its credibility". These authors go on to suggest that a given ethnic group may be stripped of its original attributes but be recreated into something new. It would, however, retain its status as a separate identifiable group (idem, p. 13). Gordon (1964) also claims that in spite of expectations to the contrary, the sense of ethnicity or "peoplehood" has proved to be "hardy... as though there were some essential element in man's nature that demanded it" (idem, p. 25). Regarding religion, Lenski (1963: 319-320) has proposed that, contrary to the expectations of the nineteenth century positivists, religion in various ways is constantly influencing the daily lives of the masses of men and women in the modern American metropolis.

In Canada there has been no lack of literature on the distinctiveness, particularly of the French Canadian group. As Siegfried (1906) was able to say, even after a century and a half of foreign domination, the French "race" persists in its existence and individuality. Wade (1960) provides a good example of more recent statements on these issues. Garigue (1956) and Piddington (1971) emphasize the extent to which kinship networks have an important role in the preservation of this distinctive French identity. Among other large groups, the Ukrainians have probably made the largest effort toward preservation of a separate identity (see particularly Hobart et al., 1966; Wangenheim, 1966; Darcovich, 1967; and Marunchak, 1970). There are also a number of smaller groups that have proved very viable. The Hutterites are a good example of a small but enduring ethno-religious group (see Peter, 1965). These matters will be further elaborated in Section 2.2.

The authors quoted above may not speak directly to questions of fertility but the general notion is that ethnic groups will remain differentiated on a large number of characteristics. It is granted that such processes as urbanization have their effect on individual behaviour. However, as Garigue (1956: 433) puts it, the influences of urbanization and cultural values must be seen as distinct. It is, of course, possible that ethnicity has an effect on behaviour without having an influence on fertility. It would, however, be expected that if ethnicity remains important in modern life, fertility will be differentiated along ethnic lines. In general one might predict a situation similar to the general conclusion derived by Smith (1973: 3): American fertility surveys have documented "the narrowing of fertility

differentials associated with socioeconomic status, and the persistence of religious and ethnic fertility differentials".

We have thus far addressed the question: Should ethnicity make a difference? The next question would be: If so, why does it make a difference? There appear to be at least four somewhat overlapping approaches to this question. These will be labeled the "characteristics", "particularized ideology", "minority relations" and "reference group" approaches.

The "characteristics approach" would claim that the distinct fertility of subgroups merely reflects the matrix of social, demographic and economic attributes that characterizes these subgroups (Goldscheider, 1971: 172). If, on first analysis, differences do follow ethnic lines, it is because the other relevant characteristics are not randomly distributed in the various ethnic groups. Sly (1970) tested this notion on the black-white fertility differences at the 1960 census of the United States. It was found that once wife's education, husband's occupation and family income were controlled, whites had higher fertility. However, further analysis tended to indicate that this ethnic variable did not explain a significant amount of the variance. Roberts and Lee (1974) found that when the Spanish were included among the ethnic categories, the independent effect of ethnicity was persistent after controlling socioeconomic factors. Bean and Wood (1974) found differences in the patterns of relationships between income and fertility among the ethnic categories of Anglos, Blacks and Mexican Americans. Chapter 3 provides a test of this characteristics hypothesis.

The "particularized ideology approach" is more appropriate for religious than for ethnic subgroups. The claim would be that fertility is influenced by value orientations and norms regarding family size and birth control. In the second Growth of American Families Study (Whelpton et al., 1966: 124) it was found that religion influenced preferences for family size while education was associated with ability to control family size. Rainwater (1965: 282) concludes from his intensive interviewing that people's thinking regarding family size was stongly influenced by normative considerations which they have internalized as participants in the larger society. In order to test the particularized ideology proposition, one generally looks for differentials within religious or ethnic groups. It would be expected that those higher on an index of religiousness and the more "ethnic-conscious" would exhibit extreme forms of the given behaviour. Again summarizing American experience, Goldscheider finds that this proposition is not fully supported. Though religiousness has the expected effect within the Catholic population, it has no effect for the Protestant population (Goldscheider, 1971: 289). He also points out that Irish Catholic versus Italian Catholic differences remain unexplained by this perspective (idem, p. 293). Chapter 4 takes a closer look at these issues in a slightly modified form.

The "minority relations approach" has been explicitly considered in attempts to explain the higher fertility of Dutch Catholics as contrasted with other Western European Catholics; Groenman (1951; as quoted in van Heek, 1956: 126) proposed that the very existence of religious heterogeneity may have had the effect of giving religion a more prominent place in Dutch life. The essential idea is that inter-

group competition is at the origin of the fertility differential. Hutterites may be taken as another example of a minority group which has assured its survival through high fertility. Lorimer (1954: 199) suggested the following generalization: a situation involving corporate kinship groups and a tendency toward intersocietal competition for control of resources appears to be associated with cultural motivations for higher fertility. These ideas were later elaborated and tested by Day (1968) in an article on "Nationality and ethnocentrism". He proposed that the larger culture determines what is the range of "acceptable behavior" with respect to family formation. The particular level of Catholic natality within this range would then be determined by the relative standing of Catholics within the society, particularly with respect to the percentage they form of the total population (idem, p. 31). Studying the situation in 15 developed countries, Day found that there was a stronger Catholic - nonCatholic differential in those seven countries in which Catholics were a minority. The situation of Jews in the United States demonstrates that there is no necessary connection between minority status and higher fertility. Day thus proposes that minority status will lead to higher fertility only when the group is pro-natalist. On the other hand, minority status can lead to anti-natalistic practices as a means to strengthen the social position of the individual members of the group (idem, pp. 46-47). This latter point has been further developed by Goldscheider (1971: 297):

> As a general hypothesis we would argue that the insecurities of minority group membership operate to depress fertility below majority levels when (1) acculturation of minority group members has occurred in conjunction with the desire for acculturation; (2) equalization of social and economic characteristics occurs and/or social and economic mobility is desired; (3) no pro-natalist ideology is associated

with the minority group and no norm discourages the use of efficient contraceptives.

In sum, under given conditions, the insecurities and marginality associated with minority group status are expected to exert an independent effect on fertility (Goldscheider and Uhlenberg, 1969: 372). This framework was also used by Kennedy (1973) in comparing the fertility in Northern Ireland to that in the Republic of Ireland within the categories of Catholic and non-Catholic. The Catholic minority in Northern Ireland was found to have higher fertility. This was attributed to the fact that Catholics form a large and homogeneous minority whose members do not have much of a chance for individual upward mobility. The non-Catholic minority in the Republic of Ireland did not have higher fertility, and this was attributed to the absence of the above conditions.

The "reference group approach" has its clearest statement in Yaukey's (1961) attempt to explain Christian and Moslem differences in Lebanon. The fertility differences by education and residential background were found to be as expected within the major religious classes. However, religious identification was found to qualify how rapidly any residential and socioeconomic type made the transition from high to low fertility (idem, pp. 77-79). The suggested explanation for this finding is that the Christian sects have had closer identification with Europe and the United States and thus better avenues for the transmission of the Western family model (idem, p. 81). The "particularized ideology" proposition was not supported by these results since ethical principles would have prediced the opposite results. It will be noted that the "minority relations" and "reference group" approaches

are quite similar. Van Heek (1956: 126) in fact speaks of minority groups as "obstacles to social imitation", and Day (1968: 30) uses the notion of "reference group membership" in explaining minority group behaviour.

In general then, the above orientations differ basically on the following point: do differences in the fertility behaviour of ethnic groups reflect responses to different life situations or do they reflect differences in normative forces and in the way these operate? Such is the essential focus of the present thesis.

1.3 Operationalization of the problem and outline of the thesis

Chapter 2 will first establish fertility differentials by ethnicity in the Edmonton sample. In the following chapters three sets of predictors are examined for their ability to explain the observed differentials: background factors, assimilation factors, and an economic model.

Certain background factors are examined in order to operationalize a test of the "characteristics approach". The basic variables of education, income, occupation, religion and urban-rural origin are analyzed for their ability to account for the ethnic differentials.

The second approach attempts to determine whether or not ethnic fertility differences can be understood through questions of assimilation or of "ethnicity in depth". Assimilation is measured essentially through length of residence in Canada, intermarriage and language use.

Thirdly, an economic model is tested to see if ethnic differentials are due to differences on the variables of this model. As elaborated in Capter 5, the economic utility model argues for the applicability of cost-benefit analysis to the understanding of fertility decisions. The essential idea is that fertility decisions are arrived at through a consideration of relative preferences for children (as compared to other consumer goods), direct and indirect (opportunity) costs of children, and the couple's level of living.

In a sense this thesis establishes differentials, then proceeds to determine whether or not they withstand three explanatory perspectives. If the differentials are upheld we will be in a good position to say that ethnicity, as such, does make a difference. If they are not upheld, we will have suggested an other explanation for the initially observed differences.

1.4 Canadian ethnic richness

As other authors have noted (Charles, 1948: 52; Larson, 1971: 90), Canada is a particularly rich field for the study of the influence of social heritage on reproductive behaviour. We have at the same time a large amount of heterogeneity with respect to national origins and a statistical tradition by which this heterogeneity has been documented. The French Canadian minority has been particularly adamant on retaining the ethnic origin question in Canadian censuses. They have seen this as a means by which to remain visible as a separate and substantial minority. Thus ethnic data will stay with us at least while this country holds together.

There are certainly other countries that contain within their boundaries a variety of ethnic groups. Canada, however, has a certain uniqueness in encouraging the retention of different traditions. As Richmond (1967: 151) has noted, Britain, Australia and the United States have generally emphasized the assimilation of immigrant groups into an essentially monocultural system. These countries have not attempted to encourage and promote the persistence of ethnic minorities and of social institutions to serve their needs.

Possibly because of this orientation to assimilation, Australia and the United States do not gather extensive information on ethnicity in their national censuses. In the United States, data on place of birth are available since 1850, and on country of birth of parents since 1870. Hutchinson (1956) has made interesting use of these data in the analysis of the occupational distribution of these two generations of "foreign stock". The Australian censuses only have information on the ethnicities of foreign born. Thus when Borrie (1954) uses census data to study the assimilation of Italians and Germans he is limited to the following groups: Australian born, foreign born (by ethnicity) and intermarriage between the two stocks. These information deficiencies at the national level may provide an explanation for the popularity of models which imply assimilation within two or three generations. If the various groups lose their statistical identity after two or three generations, then they are assumed to be assimilated.

On the other hand, Canada may be overemphasizing dimensions that have little behavioural relevance. Ryder (1955: 477) has

suggested that people who speak the same language are almost certainly more alike in important social respects than people who are of the same origin. Likewise, Elliott (1971a: 3) argues that it is impossible to specify whether the various Canadian ethnic groups are part of the majority or whether they form distinct minority groups.

We might also note that Edmonton has even more "cultural diversity" than the average Canadian city. If we divide the population into the three groups of British, French and Other descent, it is found that only Regina, Winnipeg, Kitchener and Thunder Bay have a higher proportion in the Other category (Simmons and Simmons, 1970: 126). This situation of considerable heterogeneity while "time" and "society" are held constant thus provides a rather ideal situation within which to study ethnic differentials.

1.5 Introduction to Canadian fertility

In order to put the study into context, it may be useful to refer to a few basic data series and references to Canadian fertility. Additional references of more specific relevance to each topic are given in the succeeding chapters.

Table 1.1 presents the historical data on crude birth rates for Canada, Alberta and Edmonton. The three series have the same pattern of a decrease to 1936, then an increase to 1956 and a gradual decrease since that date. It is interesting to note that since 1946 Alberta has had a higher birth rate than the Canadian average; in the same period Edmonton's rate has been higher than the Alberta average. However, when adjustments are made for marital status this picture is changed. The census information on the number of children ever born

Table 1.1 Crude birth rates* for Canada, Alberta and Edmonton, selected years, 1921-1972.

	Canada[1] (1)	Alberta[1] (2)	Edmonton[2] (3)
1921	29.3	28.1	
1926	24.7	23.8	
1931	23.2	23.6	21.1
1936	20.3	20.4	16.7
1941	22.4	21.7	19.5
1946	27.2	27.6	28.2
1951	27.2	28.8	31.8
1956	28.0	31.1	34.9
1961	26.1	29.2	30.5
1966	19.4	20.9	22.0
1967	18.2	20.6	21.7
1968	17.6	19.8	21.0
1969	17.6	19.8	20.9
1970	17.4	20.0	21.1
1971	16.8	18.8	19.6
1972	15.9	17.7	17.6

* Crude birth rate: births per 1000 mid-year population.

Sources: 1) Canada, Statistics Canada, 1974b: 55 (1921 excludes the Province of Quebec).

2) Alberta, City of Edmonton, 1972: 5 (residents only).

per 1000 ever married women is as follows(1):

	1941	1961	1971
Canada	3,341	2,987	2,775
Alberta	3,219	2,899	2,778
Edmonton		2,555	2,504

Here Alberta falls below the Canadian average for 1961 and is very close to the Dominion rate for 1971. Edmonton is consistently below the Alberta averages. These comparisons are affected by age distribution differences in the three populations. Edmonton has proportionately more young married couples than Alberta, and Alberta has more than Canada. Equivalent data are not available for specific age groups.

Though it is not particularly relevant here, a number of authors have studied Canada's earlier fertility history (see particularly Sabagh, 1942; Henripin, 1954, 1960; and Lieberson, 1970: 50-52). For the more recent period there are three major monographs which we will have occasion to consider in more detail elsewhere. Tracy (1942) studied the period 1927-36 while Charles (1948) and Henripin (1968) based themselves primarily on data from the 1941 and 1961 censuses respectively. In analyzing the decrease in child-woman ratios from 1921 to 1931, Hurd (1937) found that some 67 percent of the decrease is due to the less favourable age distribution and conjugal condition in 1931. LeNeveu and Kasahara (1958) made an interesting study of the differential change of fertility in Quebec and Ontario since 1941. They found that Ontario has had a faster rate of increase in marriages at younger ages. Also, while Quebec marital fertility continued to decline except at ages 15-19, in Ontario it increased by about 20 percent in the important ages 15-29. Biraben and Legaré (1967) show that the convergence of Quebec and Ontario fertility continued into the

1960's. Lachapelle (1974: 9) further finds that by the 1932-36 cohort, the completed fertility of married women will be higher in Ontario than in Quebec. On the basis of the Quebec fertility survey of 1971, Henripin et al. (1973: 120) calculate that the generation of women born in 1951 will be the last to ensure its replacement. Henripin and Legaré (1971) have made an excellent analysis of Canadian trends since 1946. The high birth rates until 1957 are seen as a result of the increase in proportion of married women and also an increase in legitimate fertility rates. The decline since 1957 is shown to be almost exclusively the result of a decline in marital fertility. They show how period rates can be deceptive; these period rates overestimated true behaviour (as measured by completed family size) in the period 1946-61 while since 1962 these rates have underestimated true behaviour. Thus Henripin and Legaré propose that most of the recent decline in period rates is explained not by a reduction in the size of families, but by a change in the timing of childbearing (idem, p. 116).

CHAPTER 2

ETHNIC DIFFERENTIALS: PREVIOUS FINDINGS AND INITIAL RESULTS

> It has been a doctrine of our time that the earth's surface should be divisible into clearly bounded territories, each occupied by a racially and culturally homogeneous people who can celebrate their past, their present, and their hopes in common ceremony... Few countries conform, in all particulars, to this ideal. This fact, together with the continual expansion of economic regions without too much respect for national boundaries, and along with all the dynamics of human increase and migration, makes the relations between races and peoples more important and complicated than ever.
>
> (Hughes, 1943: 111)

2.1 Review of relevant American and Canadian literature

It is beyond the possibilities of this thesis to make a complete review of previous literature on ethnic fertility differentials. Each country has its own ways of dividing its population along lines that are relevant to its social situation. It has already been mentioned that questions on ethnicity are far from being an established practice within the context of national census operations. In the United Nations recommendations for the 1970 census round the question on national and/or ethnic groups is placed as an "other useful topic" rather than a "recommended topic". Only the Economic Commission for Africa places this question as "basic" for the countries within its region. (United Nations, 1967: 40, 151). In the context of special surveys, it is easier to ask a larger number of questions and thus to include aspects of ethnicity. Fertility surveys, however, are far from being an established practice around the world.

2.1.1 American literature

It has been said that more is known about the fertility of the American population than about that of any other country (Freedman, 1962: 211). This knowledge is certainly due in part to the fact that the survey technique has been well established in the American culture for purposes ranging from scientific pursuits to public opinion. It thus appears appropriate to review some of the findings from the United States.

The first fertility study dates back to 1941 when information was gathered from 1,444 couples in the city of Indianapolis. The sampling criteria were rather restrictive: relatively fecund couples, both husband and wife native white Protestants, both having finished as least the eighth grade of school, married during the period 1927-29, neither previously married, husband under 40 and wife under 30 at marriage, and residents in a large city most of the time since marriage. A series of hypotheses were under study, many of them of a psychological or social-psychological nature. An important general finding of the study was that there was a closer relation of broad social and socioeconomic factors than of psychological factors to fertility (Kiser and Whelpton, 1958; Freedman, 1962: 220).

The longitudinal Princeton study can be seen as a direct descendant of the Indianapolis survey. Again the sampling criteria are such as to tend to eliminate ethnic differences rather than permit their analysis. The sample taken in 1957 consisted of 1,165 native-white couples, resident in large metropolitan areas, who had recently had a second birth and whose family growth hitherto had been uncompli-

cated by such factors as divorce, separation, death, extensive pregnancy wastage, plural birth or adoption (Bumpass and Westoff, 1970: 7-8). The second interview reached 905 women in 1960 and the third 814 in 1963-67 (idem, pp. 10-12). In the first report (Westoff et al., 1961: 202-209), some analysis is made particularly of Irish and Italian ethnic differences. It was found that most of the differences between these two groups could be explained by differences in religiousness, particularly as measured through church-connected education. However, there was still some variance in fertility associated with ethnic background that could not be attributed to religiousness. The second report (Westoff et al., 1963: 102-106) showed that for the most part the variability in fertility was greater across religious categories within nationalities than across nationalities within religious categories. An important finding of the Princeton study was that relevant factors interact differently within the three major religious subgroups. For instance, religiousness and socioeconomic status were positively related to fertility for Catholics but negatively related for Protestants (idem, pp. 238-239). Thus, as Westoff (1962) notes, it is useful to treat the religious categories separately in the analysis.

Alongside the Princeton series, the Growth of American Families study (1955, 1960) and the National Fertility Survey (1965, 1970) have sampled the entire nation. The samples for 1955, 1960 and 1965 consisted respectively of 2,713 white married women (Freedman et al., 1959: 10), 3,322 white and black married or previously married women (Whelpton et al., 1966: 4) and 5,617 currently married women with an oversampling of blacks (Ryder and Westoff, 1971: 10). While

religion was an important factor in establishing family size desires, education was important in the ability to control fertility (Whelpton et al., 1966: 69). In spite of the greater opportunities for doing so, no studies are made in these reports of ethnic differences beyond that of white versus black. Freedman et al. (1961) have further analyzed an interesting select sub-sample of the 1955 respondents. A precision matching on the basis of six relevant background factors was made to obtain 66 women from each of the three major religious groups. It was generally concluded that while the differences between Protestants and Jews tended to disappear, the difference between these two groups on the one hand, and Catholics on the other, were as great or greater after controlling for social and economic characteristics.

There is also a wealth of fertility information in three monographs based mainly on census data. Grabill et al. (1958: 103-107) report that in 1950 the fertility rates of foreign born white women who had ever married fall below those for native whites at all ages of the 20-44 span. The opposite situation had occurred in 1910 and 1940; that is, foreign born had higher fertility than native born. It is also noted that in 1910 and 1940 the native white women of foreign or mixed parentage had fewer children on the average than did the women of native parentage. However, this situation is reversed when only urban areas are considered.

The 1960 census monograph by Kiser et al. (1968: 64-73) makes a slightly more detailed analysis of the fertility of the foreign stock. Studying the completed fertility of foreign born women living in urbanized areas and aged 45-54, the following high to low ranking is

obtained by country: Mexico, Ireland, Italy, Canada, Czechoslovakia, Poland, United Kingdom, U.S.S.R., Austria, Sweden, Norway and Germany. Using instead the native born of foreign or mixed parentage, the ranking is generally unchanged. Also, those of foreign birth had, with few exceptions, fewer children than did the natives of foreign or mixed parentage of similar age and country of origin. Additional analysis is made of some ethnic subgroups that can be identified by the census. Among the nonwhite ever married women, the American Indians exhibit highest fertility rates at ages 25 and over and the blacks at ages under 25. The Japanese and Chinese tend to have the lowest fertility rates among nonwhite women under 40 years of age. Though residence is controlled in the tabulations, it is expected that economic and educational status differences would account for an additional part of the differentials.

Cho et al. (1970: 56-66) have documented very similar findings with respect to ethnicity. It is noted that the native whites of native parentage have higher fertility than the foreign stock. In addition, Puerto Ricans in the United States are less fertile than in Puerto Rico.

2.1.2 Canadian literature

Whereas American literature has concentrated on questions of white-black, Protestant-Catholic-Jew and native-foreign fertility differences, the Canadian literature tends to emphasize English-French and Protestant-Catholic differences. Long (1970: 146) found that white-nonwhite differences in the United States have not been nearly so great as religious and ethnic differences in Canada. Comparing the ever

married women born in 1916-20 in the United States to those born in 1917-21 in Canada, the white-nonwhite differential is 0.47 children while the Protestant-Catholic differential is 1.24 and the British-French is 1.47 children. We will now review the relevant monographs, fertility surveys and articles in as much as they relate to these issues.

Tracy's (1942) analysis concentrates on the birth series for the period 1921-36. There was a general decrease of fertility over the period but particularly at parities three to five; the first two parities actually registered increases (idem, p. 217). Comparing the crude birth rates of 1921-22 to those of 1931-32 indicates that the British stocks had the largest decline over the period; the Italian and Central and Eastern European groups experienced decreases that are less than the overall total; the French show a slight decrease, and the Dutch an increase (idem, pp. 292-293). Total fertility rates are given in Table 2.1 in decreasing order by ethnicity based on a standard population of married females for the period 1930-32. In 1940-42, Hurd (a: 169) established the following births per 100 married women aged 15-44:

French	259	Slavic	145
Asiatic	181	British	140
Germanic	166	Latin and Greek	140
N.W. European	[illegible]8	S.C. and E.	
Scandinavian	[illegible]54	European	139

There is no need to emphasize the variability which these numbers indicate. Another way to say this is that on the basis on their numerical importance in the population, Anglo-Saxons contributed 22 percent fewer births than expected in 1931 and French contribued 38 percent more than expected (Hurd, 1942: 560).

Table 2.1 Total fertility rates for the child-bearing ages, by racial origin of mother, based on a standard population of married females. Canada. 1930-1932.

Racial origin	Standardized total fertility rate (per 1000)*
French	243
Chinese and Japanese	201
German	163
Ukrainian	162
Indian	156
Hungarian	153
Italian	153
Czech and Slovak	151
Scandinavian	137
Polish	130
British	129
Belgian	123
Austrian	121
Russian	121
Dutch	116
Roumanian	113
Finish	94
Hebrew	84

* The total fertility rate is the births per 1000 married women 15-49 years of age; these are here standardized in accordance with the age distribution of married females in Canada in 1931.

Source: Tracy, 1942: 305.

The excellent monograph by Charles (1948) is based mostly on the completed family size question as asked for the first time in the census of 1941. Only three mother tongue groups are introduced in the analysis of variance. These are English, French and Other European. Controlling for wife's education, religion, residence and rural or urban place of birth, the standardized mean for French mother tongue group was 4.65 children as compared to 3.33 children for their English counterparts (idem, p. 68). The French completed fertility was thus 40 percent higher than the English for women aged 45-54 in 1941. Equalizing differences in religion, residence, education and mother tongue, the completed family size of Canadian born versus foreign born women showed no significant difference (idem, p. 92). A study of regional differences points to two principal centers of high fertility: rural French speaking Catholics in Quebec and New Brunswick, and the European language groups in the Prairies (idem, p. 91).

The question on completed fertility of ever married women was asked again in the 1961 census. Henripin (1968) has subsequently carried out an extensive analysis of these and other related fertility data. Table 2.2 shows that completed family size ranges from around six children for Indian and Eskimo to two for Jewish. Controlling for residence reduces, but certainly does not eliminate, this range of differences. However, looking more closely at the Catholic group and controlling for education of husband and wife as well as husband's income, Henripin shows that differences between English, French and Other mother tongues essentially disappear (idem, pp. 185-191). An interesting analysis is also made of differentials by nativity; this analysis generally indicates that fertility is highest when both

Table 2.2 Completed family size per 1000 ever married women of various ages by ethnicity. Canada. 1961.

Ethnicity	AGE GROUP				
	45-49	50-54	55-59	60-64	65+
	(1)	(2)	(3)	(4)	(5)
Indian	6702	6131	6013	6009	5804
Eskimo	6525	5862	6087	6736	5714
French	4278	4524	4979	5483	6242
Asiatic	3159	3200	3673	4157	4516
N.W. European	2805	2836	3180	3507	4250
Irish	2823	2704	2732	3034	3391
British	2624	2519	2626	2817	3130
Jewish	1960	1912	2080	2379	3547

Source: Henripin, 1968: 176.

husband and wife were born in Canada, lowest when they are both of foreign birth and intermediate when one or the other was born outside Canada (idem, pp. 153-154). It is also found that women have more children if they were residing in Canada at the time of their childbearing.

Canada does not have a very long history of fertility surveys. If we count the one by Carisse in 1959 when 80 families were interviewed in Montreal, there are a total of four surveys each of which has limited geographic scope. The early venture by Carisse (1964, 1968) was limited to French Catholics. In order to maximize the possibilities of analysis, she chose 80 respondents who each had at least one child and who had been married five or eleven years. The mean desired family size was 4.1 and the mean ideal family size was 4.5 (Carisse, 1968: 60). Though some 80 percent of respondents had used contraceptive practices, it was judged that the type of family planning exercised was not sufficient to limit family size to that desired.

The Toronto fertility study by Balakrishman et al., (1972) was taken in the first three months of 1968. Interviews were obtained from 1,632 wives all of whom were under age 46 and living with their husbands. This represented 81 percent of the eligible selected households. A multiple classification analysis on nine socioeconomic and demographic variables shows that wife's labor force status is the strongest nondemographic predictor of current family size (idem, pp. 58-60). Though no analysis is made of the effect of ethnicity as such, it is found that controlling for other factors, foreign born had

lower fertility than their native born counterparts and that the ordering on religion from highest to lowest was: Catholic, Other, Protestant and Jewish (idem, pp. 58-60). As in some American studies, there was an interaction between religion and education: for Catholics those with highest education expected highest fertility whereas the reverse occured among Protestants and the Other religion group (idem, p. 38).

Few results are yet available from the 1971 survey in the Province of Quebec (Lapierre-Adamcyk, 1974). The target population consisted of ever married women aged 15-65. The 1,745 interviews were taken in the Summer and early Autumn of 1971 (Henripin, 1973: 118). As can be seen from Table 2.3, each generation of French married women expect more children than their English counterparts. The differences at generations later than 1911-20 are small but the differential for the youngest group remains substantial.

Questions on family size were asked in a survey involving interviews with 809 Alberta Ukrainians (Hobart et al., 1966). The modal category for the family of origin was six children. Among these, the largest families occurred for those born in Canada of Ukrainian born parents; Ukrainian born had the second largest families while those born in Canada of Canadian born parents had the smallest families. The modal category for respondents' ideal family size was four children (idem, pp. 269-270).

Table 2.3 Total number of expected children by mother tongue* and generation. Quebec Survey. 1971.

Generation	French (1)	English (2)	Other (3)	All groups (4)
1911-1920	4,66	2.18	2.10	4.18
1921-1930	3.71	3.35	2.85	3.54
1931-1940	3.46	3.34	2.81	3.33
1941-1950	2.92	2.47	2.73	2.84

* French and English mother tongue mean that both spouses are of that mother tongue.

Source: Henripin and Lapierre - Adamcyk, 1974: Table B3, p. 150.

Burch (1966) used especially the child-woman ratio to study the fertility of North American Catholics. In the United States, Catholics of Hispanic-American origin (Mexican and Puerto Rican) have highest fertility with the Irish ranking second. In Canada the non-French non-Italian Catholics have highest child-woman ratios. About 54 percent of this group is Irish. Thus French Canadians, especially in the Province of Quebec, are no longer characterized by extraordinarily high fertility. Burch notes that there has been a convergence of religious differentials in Canada in the period 1931-61. He also shows that French Canadians have adopted the "European pattern" of fertility reduction: late marriage and widespread non-marriage. With the possible exception of the Irish this pattern would be unique in North America.

Krotki and Lapierre (1968) have continued this type of analysis using as well the completed fertility data of the 1961 census. They point out that while there is convergence in Catholic versus non-Catholic rates in the period 1931-51, the differences stabilize in 1951-61. They also point out a problem with these types of conclusions: the fact that Catholics marry older can give the false impression of covergence. The inter-ethnic child-woman ratios for 1961 are compared within religious groups to give the following results (idem, p. 827):

	Catholics	Non-Catholics
British	753	535
French	640	616
Italian	654	682
Polish	578	526

It is thus evident that the ethnic differences remain even when religion is controlled. Krotki and Lapierre also point out that in each province the groups that have one of the two characteristics of French or Catholic have higher fertility than the non-French non-Catholic groups. Interestingly, all ethnic groups had lowest fertility in the Province of Quebec. A rank order correlation by province points to the importance of urbanization as an explanatory factor in the fertility of ethno-religious groups.

Long (1970: 139-144) has paid particular attention to the differences among the historical trends of religious groups in Canada. Protestants and Jews showed consecutive increases in completed family size for cohorts born in 1912-16 to 1922-26. Among Catholics, the 1912-16 cohort represented a continuation of the historical decline and the 1917-21 cohort showed a leveling-off. In short, there was no evidence of increase in average family size for Catholics as of 1961. The Irish group exhibited both the higher marital fertility associated with Catholicism and the historical pattern typical of persons of British ancestry. In cities of over 100,000, Catholics also showed evidence of the same pattern as Protestants and Jews. Long concludes with the following statement regarding the importance of such differentials:

> One is struck by the fact that inter-group fertility differences within a nation may be as great as fertility differences between developed and underdeveloped nations. And among developed nations inter-group fertility differences may account in large part for differences in family size between two nations (idem, p. 148).

It is difficult to draw conclusions from this already extensive series of findings in only two countries. At least recently, foreign born women have had lower fertility than native born. Though ethnic differences have generally converged in recent years, they have not disappeared. Most studies do not introduce controls for basic socioeconomic factors. Where controls are introduced, the differentials would tend to become narrower but some differences generally persist.

2.2 Background information on British, German, French, Irish and Ukrainian groups in Canada

Canada's ethnic literature is voluminous. There are several good bibliographies to this material. The one by the Department of Citizenship and Immigration (1960, 1962, 1964) and later the Department of Manpower and Immigration (1969) is of the highest quality. Bibliographies are also available through Gregorovich (1972) and within the journal entitled Canadian Ethnic Studies. Here we will first present a few statistics, then review some of this literature as it applies to the specific ethnic groups under study.

Table 2.4 presents the ethnic distribution for Canada, Alberta and Edmonton as tabulated by the 1971 census. It can be seen that Edmonton has a significantly higher proportion of German and Ukrainian and a lower proportion of French than Canada as a whole.

The British group is the largest both in Canada, Alberta and Edmonton. The 1971 census did not follow the earlier tradition of subdividing this group into English, Scottish and Irish. According to Encyclopedia Canadiana (1968:IV: 11) the bulk of the English immigra-

Table 2.4 Distribution by seven ethnic groups. Canada, Alberta, Edmonton. 1971 census.

Ethnic group	CANADA[1]		ALBERTA[2]		EDMONTON[3]	
	Number	Percent	Number	Percent	Number	Percent
	(1)	(2)	(3)	(4)	(5)	(6)
British	9,624,115	44.6	761,665	46.8	193,605	44.2
French	6,180,120	28.6	94,665	5.8	29,500	6.7
German	1,317,200	6.1	231,005	14.2	54,405	12.4
Other W.E.[4]	2,013,355	9.3	200,280	12.3	46,870	10.7
Ukrainian	580,660	2.7	135,510	8.3	58,475	13.3
Other E.E.	751,530	3.5	99,550	6.1	23,440	5.3
Other[5]	1,101,335	5.1	105,195	6.5	32,130	7.3
Total	21,568,315	100.0	1,627,870	100.0	438,425	100.0

Sources: 1) Canada, Statistics Canada, 1973b: p. 1-1.

2) Canada, Statistics Canada, 1973b: pp. 2-1, 2-2.

3) Canada, Statistics Canada, 1973b: pp. 5-5, 5-6.

Notes: 4) Includes Other European.

5) Includes Jewish.

tion into Canada started later than that of the Scottish or Irish. The defeat of the Stuart uprising in 1746 can be seen as a major cause of the Scottish immigration which diminished by the mid-nineteenth century. The Scots originally came to the Maritimes. Lord Selkirk also attempted to settle a group of Highlanders in the Red River Valley in 1811. The Irish settlement in Upper Canada did not begin on a large scale until the beginning of the nineteenth century, following the Irish rebellion of 1798 and the great famine of 1846-47. In the mid-nineteenth century the Irish were more numerous than either English or Scottish. After this period, the emigration from Ireland was more in favor of the United States. Their proportion in Canada consequently declined. The 1921 census was the first to show the proportion of English origin more numerous than the Irish and Scottish combined. Not much has been written about the distinctiveness of the British or Irish ethnic groups in Canada. This is certainly not to say that ethnic bonds do not exist in these groups. The United Empire Loyalists provide at least one example to the contrary (see Cole, 1970). At the same time, a major group like the British need not make special efforts to assert its distinctiveness. In addition, the British often have an interest in de-emphasizing ethnicity. McNaught (1966: 64) says that the English-speaking view has always anticipated a Canadian nationality in which the significance of racial origin will diminish.

The French are of course the oldest Canadians of European stock. The first settlement at Port Royal was in 1605. They were also the first into the West through their "coureurs de bois" and missionaries. It is remarkable how few in number were the original immigrants. For the entire period of Nouvelle France (1608-1760) the

French immigration is generally estimated at less than 10,000. By the time of the conquest the majority of the 60,000 French Canadians were of native birth. Maheu (1970: 11) calculates that if the growth rate of the French Canadian population had been equivalent to that of France since 1760, there would only be 130,000 persons of French ethnicity in Canada today. The high masculinity ratio, the need to defend themselves against Iroquois and English enemies while peopling a vast new land, as well as certain monetary inducements to early marriage and abundant procreation can be seen as some of the factors behind the very high early French fertility in Canada. At least until recently, French fertility in Canada has remained above the national average. Various "cultural" explanations have been suggested. Garigue (1956, 1960) proposes that there is a French Canadian family ideal whose main characteristics are: extensive kinship recognition, extensive exchange of services, a strong sense of household unity and a large sibling group. Garigue argues that these factors have had high survival value given a difficult environment. After 1760, religion, family and language were the main social institutions over which the ethnic group retained control. Familistic and nationalistic values are traditionally seen as overlapping because the family is particularly instrumental to the survival of the group. Since this survival struggle was similar if not occasionally intensified in the West (see particularly Stanley, 1960) it is not surprising that Piddington (1971) finds similar emphasis on kinship relations in a French community close to Winnipeg. Henripin (1957) entertains a similar hypothesis. The reluctance to limit their families does not rest only on Roman Catholic obedience; it is also interpreted by French Canadians as a defense reaction against the

threat of disappearing as an ethnic group. It is not suprising that the role of mother receives more emphasis than that of wife and labor force participant in determining the status of traditional French Canadian women (Rocher, 1962; Garigue, 1970; Moreux, 1971).

The Germans are the largest non-British non-French group in Canada. Their immigration into Nova Scotia started in the 1750's. The United Empire Loyalists also included a certain number of German Americans. The Mennonites who came to Southern Manitoba in the 1870's were the first to demonstrate the possibility of farming on the open prairie. It should be emphasized that the Germans who came to the West were largely people who had never been in Germany themselves. Some two-thirds of those arriving before 1931 were from the language islands and colonies of old Russia, Austria, Hungary and Rumania. Of the remaining third, approximately half were German Americans and half were from Germany proper (Encyclopedia Canadiana, 1968: IV: 353-357). There is not much literature available on the distinctiveness of the German ethnic group in Canada. This may be due to their higher level of assimilation, or possibly, to their identification with religious subgroups rather than with the ethnic group. In a study of German mother tongue in Alberta, Gerwin (1938) shows that there are a wide variety of types with respect to birthplace, religion and year of immigration among this German speaking group. The German group has shown a large amount of inconsistent reporting among Canadian censuses (see Ryder, 1955). This inconsistent reporting is doubtlessly due in part to international conflicts but may also be partly due to the factors mentioned above. It is possible that many Lutherans of various Eastern European countries as well as Mennonites of Russian ethnic

origin should properly be classified as German. There is also a semantic confusion between "Deutch" and "Dutch" which problably affected the 1921 and 1941 censuses.

Ukrainians are the fourth largest ethnic group in Canada and the second largest in Edmonton. The immigration of Ukrainians is generally divided into three waves: 1891-1914 coming from Galicia and Bucovina as a result of overpopulation and oppression; 1922-1939 mostly political refugees again largely from Bucovina and Galicia which were then part of Poland and Rumania; 1946-1961 displaced persons and refugees from various parts of the Ukraine (Darcovich, 1967: 2). The first of these waves was by far the largest and Ukrainian immigrants came mostly directly to the West. Though the Ukrainian group is diverse, coming from a large agricultural area of Eastern Europe which is now part of Rumania, Czechoslovakia, Poland and Russia, they have given evidence of an ethnic differentiation which is probably second only to that of the French in Canada. This statement is supported by statistics on knowledge of mother tongue and within-group marriage (Darcovich, 1967: 22, 25). They also have shown extensive interests in the work of the Royal Commission on Bilinguism and Biculturalism (Rudnyckyj, 1967; Marunchak, 1970: 727). If there is a move from bi-culturalism to multi-culturalism in Canada, the Ukrainians are largely responsible for this new emphasis. As Wangenheim (1966) indicates, Ukrainians have shown a growing tendency to speak for the "third force" in Canada's ethnic structure.

Hobart et al. (1966) have made an extensive study of Ukrainians in Alberta. Their analysis is mostly based on interviews

with 809 respondents from three rural communities and one urban area. In general this study documents a rather strong identification with Ukrainian culture; however, only 30 percent felt that intermarriage with non-Ukrainians should be discouraged. The authors essentially expect the Ukrainian culture in Canada to follow the usual course of immigrant cultures; that is, eventual assimilation is expected (idem, p. 513). This prediction is based on the observation that assimilation is strongest among individuals born in Canada of Canadian born parents. Assimilation is also stronger for the more educated and more mobile groups, though it is weaker in the urban area (idem, pp. 269-270, 279, 532).

2.3 GAFS data

The data under analysis are taken from the Growth of Alberta Families Study (GAFS). The sample consisted of 1,045 women between the ages of 18 and 54 living in the city of Edmonton. A thirty page interview schedule was used which took an average of close to one hour to complete. The interviews were taken between November 19, 1973 and February 15, 1974 with a median date of December 15, 1973.

Stratified sampling was used to ensure that census enumeration areas with predominances of French, German, Polish and Ukrainian had a higher chance of being selected. Address lists were made of the sixty selected enumeration areas. Systematic sampling was then used to select approximately 38 contacts per enumeration area for a total of 2,300 addresses. The results of these contacts were as follows:

Completed interview	1,045	(45.4%)
No one eligible at household	662	(28.8%)
Refusal	221	(9.6%)
Vacant household	132	(5.7%)
No contact after four call-backs	107	(4.7%)
Eligible person not available	101	(4.4%)
Other	32	(1.4%)
TOTAL	2,300	(100.0%)

Assuming that the "no contact after four call-backs" group had the same percent ineligible as the total of selected addresses where contacts were made, and that all "refusals" and "others" were eligible, the non-response rate rises to 29 percent of the eligible population.

The weights of the completed interviews are obtained by multiplying the weight of the enumeration area by the number of eligible women in the selected household. All data presented herein are weighted except when quoting sample or subsample sizes.

The households in which the interviews occurred had a mean size of 3.5 persons. Some 88.9 percent of interviewed households had one eligible person while 9.9 percent had two eligible persons and 1.2 percent had three to twelve eligible women[1]. The 1,045 selected and interviewed women had given birth to an average of 1.72 live births per woman. Some 35.3 percent of the sample had no reported live births. The age distribution of currently living children was as follows:

0- 4	18.8%
5- 9	21.8%
10-14	21.2%
15-19	18.7%
20-24	11.1%
25-29	5.9%
30-34	2.3%
35+	0.2%
TOTAL	100.0%

There was an average of 0.05 deceased children per woman. In addition, there was an average of 0.34 other pregnancies per woman, of these 0.03 were current pregnancies.

The age distribution of respondents was as follows:

18-24	33.1%
25-29	16.0%
30-34	12.8%
35-39	9.7%
40-44	11.8%
45-54	16.7%
TOTAL	100.0%

The mean age was 32 and the median 30 years. The proportion currently married (or living with someone) was 70.3 percent:

Single	19.1%
Separated	3.9%
Widowed	1.7%
Divorced	4.9%
Married	70.3%
TOTAL	100.0%

The distribution by respondent's ethnicity is given in Table 2.5. The ethnicities have been grouped into eight categories to ensure adequate size of the subgroups. These ethnic categories are: British (English, Scottish, Welsh), French, German, Irish, Other Western European, Ukrainian, Other Eastern European and Other. The Polish group had initially been selected for special consideration but since the survey yielded only 40 Polish respondents (36 after weighting proportionately to sample size) these were subsequently grouped with the Other Eastern Europeans. It will be noted that ethnicity is not known for 30 of the respondents. Unless otherwise indicated, the latter are excluded from the analysis. The effective sample size is thus reduced to 1,015 women. The Other category presents an extremely

Table 2.5 Ethnic distribution in Edmonton. 1971 census and GAFS data.

	1971 CENSUS[1]		GAFS DATA	
	Number	Percent	Number	Percent[2]
	(1)	(2)	(3)	(4)
British	193,605[3]	44.2[3]	288	30.5
German	54,405	12.4	137	13.8
French	29,500	6.7	95	8.6
Irish			82	7.6
Other W.E.	46,870	10.7	144	14.0
Ukrainian	58,475	13.3	123	11.8
Other E.E.	23,440	5.3	75	6.8
Other	32,130	7.3	71	7.0
DK and NA			30	0.0
Total	438,425	100.0	1045	100.0

1) Source: see Table 2.4, Columns 5 and 6.

2) Percentages are weighted.

3) Includes Irish.

Note: In the following breakdown, groups that contain 10 or more GAFS respondents (after weighting proportionately to sample size) are mentioned:

The British include 196 English and 107 Scottish.
The Other Western European include 40 Norwegians, 28 Dutch, 24 Swedish, 15 Italians and 13 Danish.
The Other Eastern European include 36 Polish and 11 Russian.
The Other include 11 Native Indian and 10 Jewish.

diversified group. Though it is generally not possible to say anything meaningful about this group, it has been retained in the analysis mainly in order not to further reduce the sample size. Comparing the weighted sample distribution with the distribution of the 1971 census (also given in Table 2.5) indicates general agreement on this characteristic. The sample underestimates the British (including Irish), Ukrainian and Other group while overestimating the four other ethnic groups. Part of the discrepancy could be attributed to the fact that the sample was drawn on the basis of the 1961 census distribution. That is, the 1971 data on ethnicity were not available when the sample was fixed.

2.4. The fertility measures adopted

Two measures of fertility are used in this study: current family size and expected family size. The major emphasis is placed on current family size. This is simply the respondent's total number of live births[(2)]. It could be argued that pregnancies not resulting in live births should also be included since they are bound to make a difference to current family size. On the other hand, the literature tends to indicate that miscarriages, stillbirths and abortions are poorly reported (Bumpass and Westoff, 1970: 133-134; Ryder, 1973a: 500-501). It is thus an accepted practice to limit oneself to effective fertility.

The second fertility measure, expected family size, is essentially the number of live births plus additional births expected. There are a number of problems with the use of this measure. In order to facilitate field work, the sampled women who were never pregnant

or who were not currently married (or living with someone) were not asked the direct question on expected family size. For these women, expected size is generally measured through the question on desired family size. Appendix A gives a detailed description of the measurement of expected family size. The literature tends to show that expected family size is a good predictor of completed fertility in the aggregate but a poor predictor when individual women are considered separately. In the Princeton study the wife's desired family size six months after the second birth (i.e. at the time of the first interview) proved to be the strongest predictor of fertility over the next three years among all the data collected in the first interview (Westoff et al., 1963: 236). On the other hand, some two-fifths of the women gave differing responses at the first and second interviews, and nearly three-fifths gave differing answers at the first and third interviews. However, the discrepancies were small so that for 85 percent of the women the number desired at the third interview was within one child of the number desired at either the first or the second interviews (Bumpass and Westoff, 1970: 21-22). In the Detroit sample, some 30 percent of respondents changed their expectations between 1955 and 1958 (Goldberg et al., 1959: 376). Rainwater (1965: 124-125) also gives some evidence indicating that if an individual's desires are altered over her or his marital history, these desires are more likely to be increased for the lower class person and decreased for the upper class person. Blake's (1974) latest analysis casts doubt particularly on recent data on family expectations in the United States. She notes a strong increase in the two child response and suspects that public opinion may be having a strong influence on people's responses.

People still maintain an aversion to childlessness and to one child families. At the same time, the mean answer to the question "how many is too many?" is over five children. In addition, people want their children relatively early in the marital cycle and at short intervals. It is thus possible, as Blake suggests, that the increase in the category of two expected children reflects public opinion rather than a major change in long term motives. On the other hand, Goldberg et al. (1959: 385) argue that differences between expected and completed family size often represent an error in the fertility variable. The primary reasons given for the changed expectations are accidental conceptions, fecundity impairments and economic strain. The first two of these essentially reflect an error component; thus there is an advantage to the use of expected family size since this error is somewhat eliminated from the measurement of fertility. Besides, as Westoff and Westoff (1971: 227) say, the number of children expected remains the best estimate of the actual number the women will ultimately have.

There are certainly other dependent variables that would be worthy of consideration. Contraceptive use and effectiveness is a measure that is often given considerable emphasis in the analysis of data from fertility surveys. Questions of child spacing have also been found to be useful in the study of differentials. Ryder (1969) has most lucidly spelled out the value of distinguishing the "quantity" and "tempo" of fertility. It could also be argued that the decision regarding a third child is a particularly good measure of fertility. If two children come almost naturally, then the decision regarding the third child is particularly crucial. For examples of Canadian analyses of differentials regarding contraception and timing, see Kelly (1970),

Parakulam (1970), Lavis (1970), Destler (1972), and Lapierre-Adamcyk and Marcil-Gratton (1974). In spite of the admitted value of these measures, they will not be considered here mainly because they are less central to the specific issue of ethnic fertility differences. In this context, questions of contraception and spacing are essentially intermediate variables that would ultimately be included in the measures of current and expected fertility.

The basic demographic variables of age and marital status naturally have considerable effect particularly on current family size. The mean sizes in these various subgroups are given in Table 2.6. Current family size for the whole group increases continuously with age. This is also the case for the married group with the exception that those aged 40-44 have lower fertility than the two surrounding age groups. For expected family size, Edmonton women aged 18-34 expect less children than their older sisters.

In order to remove the above effects, each woman's fertility has been measured as the deviation from the mean for her age and marital status. Thus the effects of age and marital status are systematically removed from the fertility variables. These resulting measures have been called current family size and expected family size "net age and marital status". In order to reduce repetition, the expressions current fertility and expected fertility are occasionally substituted for current and expected family size. Unless otherwise stated, these measures will always be assumed to be "net age and marital status".

Table 2.6 Current and expected family size by age for currently married and not currently married.

Age	Total (1)	Married (2)	Not married (3)
	CURRENT FAMILY SIZE		
18-24	0.42	0.62	0.23
25-29	1.31	1.39	1.08
30-34	2.20	2.35	1.50
35-39	2.68	2.95	1.71
40-44	2.84	2.89	2.60
45-54	2.95	3.15	1.86
All ages	1.72	2.09	0.83
N	1045	784	261
	EXPECTED FAMILY SIZE		
18-24	2.57	2.49	2.66
25-29	2.52	2.62	2.27
30-34	2.55	2.66	2.07
35-39	2.97	3.11	2.44
40-44	2.88	2.90	2.80
45-54	2.95	3.16	1.86
All ages	2.71	2.80	2.46
N	987	745	242

Note: There were 58 cases of missing data on expected family size.

2.5 Initial breakdowns of fertility by ethnicity

As indicated earlier, the ethnicity concept adopted is equivalent to that used in recent Canadian censuses: "to what ethnic group did you or your ancestor (on the male side) belong on coming to this continent?". This question was asked regarding the respondent, the respondent's mother and the respondent's husband (QQ 23, 24, 168). The main analysis is carried forward on the basis of the respondent's ethnicity. Since there were more missing data on mother's and husband's ethnicity use of respondent's ethnicity maximizes the sample size. In addition, the focus is on the respondent's fertility so that it is natural to use her ethnicity as the basic independent variable. Unless otherwise stated, ethnicity therefore refers to respondent's ethnicity. The two other ethnicities will be introduced in the consideration of intermarriage (Chapter 4).

The mean current and expected family sizes for the eight ethnic groups are given in Table 2.7. These family sizes are given both with no adjustments for age and marital status, and "net age and marital status". The ranges among ethnic groups are of 0.6 children for current fertility and 0.7 children for expected fertility. These ranges are unchanged through adjustments for age and marital status. Both before and after adjustments, the French have highest fertility and the British have lowest fertility. The comparison of the two columns of this table thus indicates that age and marital status do not explain the observed ethnic differentials. After adjustments, the ranking of ethnic groups from high to low on current family size is as follows: French, Irish, Other, German, Other Western European, Ukrainian, Other Eastern European, and British . The rank ordering on

Table 2.7 Current family size and expected family size with no adjustments and "net age and marital status" by ethnicity.

	No adjustments (1)	Net age and marital status (2)
	CURRENT FAMILY SIZE	
British	1.49	-.22
German	1.62	.03
French	2.08	.37
Irish	1.75	.08
Other W.E.	1.87	.02
Ukrainian	1.91	-.04
Other E.E.	1.67	-.06
Other	1.66	.04
Total	1.70	-.03
N	1015	1015
	EXPECTED FAMILY SIZE	
British	2.51	-.20
German	2.74	.07
French	3.23	.54
Irish	2.70	.07
Other W.E.	2.68	-.09
Ukrainian	2.79	.02
Other E.E.	2.64	-.05
Other	2.70	-.01
Total	2.70	-.01
N	959	959

Notes: 1. The sample size for current family size is reduced from 1045 to 1015 due to missing data on ethnicity. For expected family size it is further reduced to 959 due to missing data on expected family size.

2. The total sample of 1045 was used to establish the means for age and marital status groups. Thus current and expected family size "net age and marital status" will always be zero for the total sample. However, when any subpart of the sample is used, the mean values may differ from 0.00.

expected family size is generally similar; the rankings of given ethnicities on the two fertility measures are all withing two places of each other.

The observed differences among ethnic groups are not particularly large. On the other hand, it must be remembered that mean current and expected family size are only 1.7 and 2.7 children respectively (no adjustments for age and marital status). Thus ranges of 0.6 and 0.7 children represent differences of 35 and 26 percent of these mean values. Differences of more than half a child are also significant when one considers the replacement of generations and the consequences of differentials on the subsequent ethnic distributions. These differences are as large or larger than those observed on seven basic socioeconomic variables in the Toronto study (Balakrishnan et al., 1972: 58-60). Blake's (1966) review of 30 American surveys covering the periods of depression, war and post-war indicated a variability of only one child between the highest and lowest mean. The remainder of the thesis investigates disparities, other than age and marital status, between the ethnic groups to determine whether or not these can be held responsible for the observed fertility differences.

CHAPTER 3

BACKGROUND FACTORS AND THE EXPLANATION OF ETHNIC FERTILITY DIFFERENTIALS

> The variables in terms of which fertility variations have most frequently and successfully been described within Western nations are income, education, occupation, race, nativity, religion and community size (including in the last the fundamental distinction between rural and urban residence).
>
> (Ryder, 1959: 411)

3.1 Introduction

It is traditional in demography and sociology to first look at differences on the basis of various background factors, sometimes called "face-sheet" variables. These types of considerations could be said to provide little explanatory power beyond that of a simple categorization or typology. Some social scientists have in fact argued that many of the differences observed along these lines are of a methodological nature. It has been argued, for instance, that middle-class social scientists and interviewers have more difficulty relating to and understanding lower class subjects who are subsequently cast in a less favourable light (see, for instance, Phillips, 1971: 44, 87). Another problem is that background factors may trigger certain stereotypical expectations on behalf of the interviewer (Kahn & Cannell, 1957). Admittedly, it is possible to overemphasize the differences that these more obvious characteristics represent, especially in the absence of adequate measurement of other less obvious variables. However, when social scientists have looked more closely at the relevance of these background factors to various other behaviours, they have generally found that these "face-sheet" considerations remain

important (see, for instance Rainwater, 1965 and Bott, 1971). Community studies have also continued to document the importance of class considerations. This is brought out, for instance, by comparing notes from upper, middle and lower class suburbs (Seeley et al., 1956; Whyte, 1957; Berger, 1960).

Much of the work in fertility differentials does not go beyond the consideration of differences due to background factors. In the present thesis, the study of these background factors has the additional relevance of providing a test for the characteristics approach to the understanding of ethnic differentials. As was elaborated earlier, this approach claims that the distinct fertility of subgroups merely reflects the matrix of social, demographic and economic attributes that characterizes these subgroups. This approach would thus lead one to expect the previously established ethnic fertility differences to disappear once such factors are controlled. We have already noted that the differentials did not change after controlling for the basic demographic variables of age and marital status (Table 2.7). It remains to be seen whether they will be upheld after controlling for other obvious background factors. The five factors that have been chosen for consideration are seen as having equal status with respect to the analysis. For the sake of convenience, they will generally be taken up in what might be a typical historical order in a persons's life cycle: religion, urban-rural residence in youth, education, occupation and income.

3.2 Some relevant previous findings

There have been very few analyses of the specific question of the influence of background factors on ethnic fertility differentials. A few of these have already been considered in Sections 1.2 and 2.1. We will here simply review some of the more recent North American literature on general fertility differences by background factors.

In the United States, we have previously noted the persistence of religious differences particularly in considering the Growth of American Families study (Freedman et al., 1961; Whelpton et al., 1966). Westoff and Westoff (1971: 222-226) expect the differentials by class (education and income) and by residence to diminish or disappear but they view religion as one of the most pronounced factors influencing the fertility of American women.

Goldberg (1959, 1960), Freedman and Slesinger (1961) and Duncan (1965) have shown that rural versus urban background is an important variable which can occasionally contaminate the effect of other status factors. Goldberg (1959) showed this by first selecting out the two generation urbanites from the Detroit sample. He was able to demonstrate that the inverse relation between income and fertility can be attributed primarily to the fertility behaviour of rural migrant families and their disproportionate representation in the lower status groups. Urban-rural differences have thus been disguised as socioeconomic differences. Goldberg further finds that only education survives as a status variable capable of differentiating levels of fertility among second generation urbanites (idem, p. 218). Similar results were found in the Indianapolis data (Goldberg, 1960).

There was a relatively strong inverse relationship between socioeconomic variables and fertility among the farm migrants but this relationship was absent among the urbanites. Similar results were observed by Freedman and Slesinger (1961) using the 1955 Growth of American Families data. Duncan (1965) repeated this kind of analysis with data from the March 1962 Current Population Survey. He found that the education differential is greatly attenuated among couples having both nonfarm current residence and nonfarm background. It is concluded that either of the two following characteristics is a sufficient condition for controlled fertility: two generations of nonfarm residence, or attainment of high levels of schooling.

Cho et al., (1970: 287-296) provide a good summary of fertility differentials as tabulated by the recent United States censuses. On residence, the fertility in the suburbs is intermediate between that of central cities and rural areas. Their relation between husband's occupational status and fertility for native white changed from inverse in 1940 to weak positive in 1955-60. For blacks the inverse relation weakened over the same period. The differential by income of husband for the total population of native whites became positive in 1960; this differential increases when education is controlled. The educational status of women was the most important of the socioeconomic variables in 1960. Its effect tended to interact with occupation, income and race: education was directly related to fertility among the higher occupational and income groups of whites but generally inversely related for blacks and for whites with lower occupational status and lower income. Considering the entire white group, the relation between education and fertility changed from negative in the

period 1935-40 to positive for all but the categories of women with less than eight years of elementary school in 1960.

Similar differentials have been documented in Canada. In addition, the question on religion is asked in Canadian censuses. The differentials between Catholics and Protestants were in the order of 1.3 children in 1941 (Charles, 1948: 68), 0.8 children in 1961 (Henripin, 1968: 342) and 0.4 children in the Toronto sample of 1968 (Balakrishnan et al., 1972: 31). The first of the above differences is standardized for other variables (residence, education, mother tongue), the other two are not standardized. Religiousness had a positive relation to fertility for both Catholics and Protestants in the Toronto sample (idem, p. 32).

The 1941 and 1961 census monographs have generally uncovered significant residence differences. In the former, rural women aged 45-54 had 1.2 children more than city women of the same ages. Women of farm birth had 0.6 children more than those of nonfarm birth (Charles, 1948: 68). Henripin (1968: 343, 345) shows that, controlling for other variables, residence emerges as the most important background characteristic.

The two studies quoted above as well as the Toronto study indicate negative relations between education and fertility. Among women who were aged 45-54 in 1941, there was a difference of two children between those who had 0-8 years of schooling and those who had 13 or more years (Charles, 1948: 68). In 1961, education of wife was second only to residence in its importance to fertility (Henripin, 1968: 345).

On occupation, Charles (1948: 102) documents a negative relation between general socioeconomic status and fertility. In Henripin (1968: 228-229) the relation is again found to be negative; that is, fertility increased through the three following occupational categories: white collar, sales and services, manual occupations. However, in the Toronto sample the relation was found to be u-shaped (Balakrishnan et al., 1972: 46).

Charles (1948: 136) found that with few exceptions income was negatively related to fertility in 1941. At the 1961 census the lowest fertility occurred for husband's incomes of $3,000 to $5,000; at higher incomes the relation was positive. Thus, Henripin (1968: 345-346) speaks of an emerging positive relationship. Rao (1973: 112-118) documents similar findings. In general the 1941 and 1951 censuses show an inverse relation between the income of wage earning families and their number of children. In 1961 the relation is positive if we exclude those who earned less than $2,000. Looking at specific age groups of heads of families, Rao found that the relation was negative in all three censuses for ages 35-44 but for ages less that 35 the negative relation in 1941 changed to positive in 1951 and 1961. In the Toronto study (Balakrishnan et al., 1972: 52) there is generally a u-shaped relation between husband's income and completed fertility.

In general the above brief review of literature documents a contraction of standard differentials in recent years. There is also evidence of a shift from negative to u-shaped or positive relations at

least for income and occupation. These two patterns are not unrelated, since a change of relationship will, at least while the change is occurring, show up as a reduction of the differentials. It might be mentioned that the transition model provides at least a partial framework within which to interpret these processes. If we agree that the transition can occur at different times for different groups, then the lower fertility of the later stages of transition can be expected to affect higher status groups at an earlier time. This observation would also be in agreement with a generalization by Westley and Westley (1971: 1) that it is the semi-skilled workers and to a lesser extent the lower level white collar workers who have been the most affected by technological, social and economic developments in the mid-twentieth century. That is, it is these groups who are more recently going through the later stages of the transition with its associated lower fertility.

3.3 Variables and their measurement

Emphasis is here placed on background factors of the respondent rather than those of her husband. This is partly a practical consideration since the sample size is reduced by 15 percent when considering only ever married women. Also, the dependent variable is obtained from the fertility history of the respondent rather than that of her partner(s). As regards the independent variables, those relevant to the partner(s) are probably less adequately measured since they essentially depend on "hearsay evidence". It can certainly be argued that at least the husband's education, occupation and income are important factors in the respondent's background. It is in fact traditional to give these variables strong consideration in the

study of basic fertility differentials. We will thus not completely exclude them from this analysis.

It may be useful to indicate the source of the variables in the questionnaire and to give the categories into which they have been coded:

Respondent's religion (Q 21)

1 Protestant: includes Anglican, Baptist, Lutheran, Mennonite, Pentecostal, Presbyterian and United Church
2 Catholic (and Orthodox): includes Greek Orthodox, Roman Catholic and Ukrainian Catholic
3 Other: includes Jewish, Other and None

Respondent's residence in youth (QQ 6, 7. "Where did you live most of the time while you were growing up (say up to age 12)?")
1 Rural community of farm
2 Town
3 City
9 Missing data

Respondent's education (QQ 17, 18) / Husband's education (QQ 165, 166)
1 Zero to eight years
2 Nine to thirteen years but no post-secondary
3 Post-secondary but no university (abbreviated as "other")
4 Some university
9 Missing data

Respondent's last occupation (Q 12) / Husband's occupation (Q 174)
1 "White collar": includes occupations in management, administration, natural sciences, engineering, mathematics, social sciences, religion, teaching, medicine and health, art, literature and recreation
2 Clerical and service: includes clerical, sales and service occupations
3 "Blue collar": includes occupations in farming, forestry, mining, processing, machining, fabricating, construction, transport equipment, handling and equipment operating
4 No last occupation

Respondent's income (QQ 169, 176)
1 Nil
2 Under $3,000
3 $3,000 and over
4 No indicated income (this includes the "never married and not living with someone" who were not asked the income question)

Family income (QQ 177, 219)
1 Under $7,000
2 $7,000 to $9,999
3 $10,000 to $14,999
4 $15,000 and more
9 Missing data

3.4 Methods of analysis

Two general methods of analysis are used in the thesis. The first is to control for and/or adjust for differences among ethnic groups on the variables under consideration. The objective of this procedure is to determine whether or not ethnic differences disappear once such factors are taken into account. In the second approach, which is given less emphasis, he factors under consideration are introduced as independent variables in a multiple regression model which is applied separately to each ethnic group. The objective here is to compare the resulting regression coefficients to determine whether or not similar factors have different effects in the various ethnic groups.

The main technique used in the first approach, and throughout the thesis, is Multiple Classification Analysis (MCA). Since there exists a highly adequate text describing the technique (Andrews et al., 1973), it is not necessary to describe it here in any great detail. The procedure could be said to be somewhat at a juncture between multiple regression with dummy variables and n-way analysis of variance with unequal cell frequencies. Unlike simpler forms of other multivariate methods, MCA can handle predictors with no better than nominal measurement, and the interrelationships of any form among predictors or between a predictor and the dependent variable (idem, p. 1). Its main advantage over multiple regression with dummy variables is in the

simplicity of the program setup and in the printout which includes the deviations of the category means from the grand mean as well as these deviations adjusted for the effect of all other variables in the model. Over analysis of variance it has the advantage of being able to deal with weighted data. On the other hand, MCA has the basic disadvantage of being a purely additive model and thus unable to deal with interaction effects. It will thus be necessary to first test the significance of the interaction terms. Since existing two-way analysis of variance programs cannot handle weighted data, this test is done through multiple regression using dummy variables and the appropriate interaction terms (see the introduction to Appendix B). When an interaction effect is found between predictors, we look at the situation at various levels of one of the interacting variables (Andrews et al., 1973: 11). It is also necessary that the predictors not be highly intercorrelated. If two predictors overlap considerably it is meaningless to control for one while looking at the effects of the other; or, statistically, the estimators become unstable. Thus correlation matrices are first checked to insure that no two highly correlated variables are retained in a model at one time. The basic model used in MCA is the following (idem, p. 36):

$$Y_{ij...n} = \bar{Y} + a_i + b_j + \ldots + e_{ij...n}$$

where: $Y_{ij...n}$ = the score (on the dependent variable) of individual n who falls in category i of predictor A, category j of predictor B, etc.

$\bar{Y}$ = grand mean on the dependent variable

a_i = the "effect" of membership in the i^{th} category of predictor A

b_j = the "effect" of membership in the j^{th} category of predictor B

$e_{ij...n}$ = error term for this individual.

An iteration procedure is used to estimate the coefficients (a_i, b_j...) starting with the mean values (less the grand mean) of the dependent variable on each category of each predictor and subsequently adjusting for the values of the other predictors. This provides the best fit to the observed data (i.e. minimizes the sum of the squared errors). This minimization process assumes that the errors in the prediction have a mean of zero, equal variance and are uncorrelated (Andrews et al., 1967: 51).

The second approach applied in this thesis makes use of multiple regression analysis. This is applied only to those variables on which we have at least ordinal measurement. There are again a number of good sources that discuss regression analysis (for example Draper and Smith, 1966 and Darlington, 1968), so that it is not necessary to do so here. Standard multiple regression is used with the following additive model:

$$X_{1i} = \alpha + B_{12}X_{2i} + B_{13}X_{3i} + \ldots + B_{1k}X_{ki} + u_i$$

where: X_{1i} = the score on the dependent variable of individual i

α = constant term

B_{12} = the effect of X_2 on X_1 controlling for the effects of $X_3 \ldots X_k$

X_{2i} = the score of individual i on independent variable X_2

u_i = error term for individual i

The coefficients are estimated through an ordinary least squares procedure that minimizes the sum of squares of errors or residuals (u's). This process assumes that the residuals have mean of zero,

equal variance and are uncorrelated. The above model also assumes that relations are linear and that effects are additive.

3.5 Background factors considered separately

The variables under consideration as well as their association with current family size and their intercorrelations among themselves, are presented in Table 3.1. This table indicates that ethnicity is less important than education, occupation and income as a general explanatory variable but more important than religion and residence in youth. It is also evident for the table that there is no instance of high intercorrelation among these independent variables.

Tables 3.2 to 3.8 will present two-way classifications of ethnicity with each of these background factors. These tables also present the ethnic fertility deviations (from the grand mean) as well as these deviations adjusted (additively) for the effect of the other factor under consideration. The analysis is supported by analysis of variance results presented in appendix Tables B.1 to B.7.

As can be seen from the lower marginal on Table 3.2, religion does not have a very large influence on current family size (the range among the three groups is 0.32 children). The amount of the variation explained by religion, however, is significant at the .01 level (Table B.1). In fact, after taking out the variance due to religion, that explained by ethnicity loses statistical significance. In studying these tables, we are mostly interested in noting whether the various ethnic groups are similarly affected by the variables under consideration. We note in this case that the Catholics have highest fertility in five of the ethnic groups; the Prostestants have highest fertility

Table 3.1 Association (Eta) between selected background factors and current family size (net age and marital status) and correlation coefficients among background factors.

Independent variables	Eta*	CORRELATIONS							
		1	2	3	4	5	6	7	8
1 R's ethnicity	.12	xxx							
2 R's religion	.10	xxx	xxx						
3 R's residence in youth	.06	xxx	xxx	1.0					
4 R's education	.21	xxx	xxx	.15	1.0				
5 H's education	.17	xxx	xxx	.17	.37	1.0			
6 R's occupation	.17	xxx	xxx	.03	.45	.10	1.0		
7 R's income	.17	xxx	xxx	.02	.05	-.02	.05	1.0	
8 Family income	.19	xxx	xxx	.02	.28	.08	.19	.14	1.0

* Eta is the square root of the ratio of the sum of squares based on the unadjusted deviation for a predictor to total sum of squares. It is the correlation ratio and indicates the ability of the predictor, using categories given, to explain variation in the dependent variable.

xxx Correlation coefficients are not calculated for nominal variables.

Table 3.2 Current family size (net age and marital status) by ethnicity and respondent's religion. Unadjusted and adjusted deviations by ethnicity.

Ethnicity	RESPONDENT'S RELIGION			DEVIATIONS FROM GRAND MEAN	
	Protestant	Catholic	Other	Unadjusted	Adjusted
	(1)	(2)	(3)	(4)	(5)
British	-.28	.29	-.34	-.19	-.14
German	.07	.14	-.37	.06	.08
French	.06	.35	xxx	.39	.29
Irish	-.15	.49	-.08	.11	.11
Other W.E.	-.14	.16	.33	.05	.06
Ukrainian	.28	-.18	-.19	-.02	-.08
Other E.E.	-.20	-.03	.13	-.03	-.07
Other	-.27	.54	-.10	.07	.06
Total	-.15	.17	-.04	.00	.00
N	516	347	152	1015	1015

xxx Category contains fewer than 10 cases.

Note: The sample size is reduced from 1045 due to missing data on ethnicity.

in the Ukrainian group; and the Other religions have highest fertility in both Other European groups.(1) Thus there is a slight variability in the way religion affects the fertility of the various ethnic groups. The last two columns of the table essentially summarize the influence of religion on the ethnic deviations. This is done by presenting the ethnic deviations as such, then adjusting them for the influence of religion. It is seen that the adjusted ethnic means are largely unchanged from the unadjusted means. The largest change is the reduction by 0.10 children in the deviation associated with the French group. Mostly because of the above adjustment, the range of deviations is reduced from 0.58 to 0.43 children. We would thus conclude from this table that religion can be held responsible for some of the fertility differences associated with ethnicity. Controlling for religion reduces but does not eliminate differences among ethnicities.

The respondent's usual place of residence in youth (until age 12) generally exercises very little influence on the fertility measure under consideration. This is in general contrast to the findings noted earlier by Goldberg (1959, 1960), Freedman and Slesinger (1961), and Duncan (1965). Fertility is highest for those who resided in towns during their youth while it is lowest for those who lived in cities (Table 3.3). Essentially the same results occur using instead the residence before Edmonton (Table not presented here).(2) Residence in youth is the only background factor that does not account for enough of the variance to attain significance at the .10 level (Table B.2). It is found that the effect of ethnicity net residence remains significant at the .10 level. This minimal influence can also be seen through the adjusted means which are essentially unchanged

Table 3.3 Current family size (net age and marital status) by ethnicity and respondent's residence in youth. Unadjusted and adjusted deviations by ethnicity.

Ethnicity	RESPONDENT'S RESIDENCE IN YOUTH			DEVIATIONS FROM GRAND MEAN	
	Rural	Town	City	Unadjusted	Adjusted
	(1)	(2)	(3)	(4)	(5)
British	-.38	-.07	-.18	-.17	-.17
German	.14	-.03	-.20	.02	.00
French	.34	.59	.26	.40	.40
Irish	-.21	.14	.24	.11	.12
Other W.E.	.10	.23	-.21	.05	.04
Ukrainian	-.03	-.10	-.02	-.01	-.02
Other E.E.	.02	-.32	-.14	-.06	-.05
Other	.84	.34	-.51	.08	.08
Total	.02	.08	-.12	.00	.00
N	368	237	391	996	996

Note: The sample size is reduced from 1045 due to missing data one one or more of the variables.

from the unadjusted means. It might also be noted that the Irish and Ukrainian groups constitute exceptions in that they have their highest fertility when residence in youth was urban.

Crosstabulations by respondent's and husband's education are presented in Tables 3.4 and 3.5. For the whole sample, both measures of education show an inverse relation to fertility. This is in agreement with findings noted earlier, except those of Cho et al., (1970) for white women with eight or more years of education in the 1960 United States census. The range of differences along the categories of the education variable are the largest encountered in this chapter. These differences are in the order of 1.01 children for respondent's education and 0.88 children for husband's education. The proportion of the total variance explained by education is significant at the .01 level (Tables B.3 and B.4). Once the variance explained by education is removed, that due to ethnicity loses statistical significance in the case of the respondent's education but not in the case of the education of the respondent's husband. Education is the only background factor on which the interaction terms with ethnicity account for a significant proportion of the variance (at the .10 level for respondent and at the .01 level for husband). This interaction can also be observed from the crosstabulations. Table 3.4 shows that within ethnicities the relation between education and fertility is generally inverse. However, the Ukrainian group is an exception since both low and high levels of education are related to lower fertility. In Table 3.5 the pattern is more complex: the inverse relation is generally retained for German, Irish, Other Western European and Other; the four other groups either show very little variation by husband's

Table 3.4 Current family size (net age and marital status) by ethnicity and respondent's education. Unadjusted and adjusted deviations by ethnicity.

Ethnicity	RESPONDENT'S EDUCATION				DEVIATIONS FROM GRAND MEAN	
	0-8 yrs.	9-13 yrs.	Other	Some univ.	Unadjusted	Adjusted
	(1)	(2)	(3)	(4)	(5)	(6)
British	xxx	-.01	-.33	-.46	-.19	-.14
German	.80	-.00	.20	-.64	.06	.03
French	xxx	.49	.04	-.56	.39	.34
Irish	xxx	.27	-.10	-.82	.09	.07
Other W.E.	.29	.28	-.05	-.42	.05	.07
Ukrainian	-.74	.21	-.01	-.68	-.02	-.07
Other E.E.	xxx	.01	-.06	-.48	-.03	-.05
Other	.95	.25	-.21	-.52	.07	.09
Total	.48	.15	-.11	-.53	.00	.00
N	81	487	268	178	1014	1014

xxx Category contains fewer than 10 cases.

a) The adjusted means are not strictly valid since the interaction reaches significance at the .10 level (see Table B.3).

Note: The sample size is reduced from 1045 due to missing data on one of more of the variables.

Table 3.5 Current family size (net age and marital status) by ethnicity and husband's education. Unadjusted and adjusted deviations by ethnicity.

Ethnicity	HUSBAND'S EDUCATION				DEVIATIONS FROM GRAND MEAN	
	0-8 yrs.	9-13 yrs.	Other	Some univ.	Unadjusted	Adjusted[a]
	(1)	(2)	(3)	(4)	(5)	(6)
British	-.10	-.11	-.05	-.21	-.21	
German	1.04	.35	-.11	-.51	.09	
French	xxx	.29	.34	.38	.43	
Irish	xxx	.47	.18	.15	.19	
Other W.E.	.52	.42	.30	-.42	.12	
Ukrainian	.57	-.33	.30	-.53	-.08	
Other E.E.	-.06	.61	-.52	-.19	-.13	
Other	xxx	.87	-.70	-.43	-.02	
Total	.64	.17	.04	-.24	.00	
N	99	300	264	179	842	

xxx Category contains fewer than 10 cases.

a) The adjusted means are not presented because interaction is significant at the .01 level (see Table B.4).

Note: The sample size is reduced from 1045 due to missing data on one or more of the variables.

education or erratic patterns which are difficult to summarize and which may be due to the small sample sizes. Since the interaction terms are significant in this model, it is inappropriate to calculate the adjusted means. However, for the respondent's education this interaction was only barely significant at the .10 level. These adjusted means have therefore been presented in Table 3.4. In general they show a reduction in the range of differentials by ethnicity from 0.58 children with no controls, to 0.48 children with the control for respondent's education. It can also be seen by comparing the last two columns that the pattern of differentials by ethnicity is remarkably unchanged after adjustments have been made for the effect of education. Thus education has a significant effect on fertility. However, at least for respondent's education, this effect is rather uniform among the various ethnic groups. The major exception occurs with the low fertility of the Ukrainian group with zero to eight years of education. This latter finding is difficult to interpret and is not very trustworthy given the small sample size.

All but 135 respondents reported at least one occupation that lasted six months or more. Though as many as five occupations have been coded, with their respective dates, only the last occupation is analyzed here. If we consider that the chosen occupational categories constitute an ordinal scale, it can be seen from the lower marginal on Table 3.6 that there is an inverse relation between occupation and fertility.(3) In addition, respondents with no recorded occupation have the largest families. Table B.5 shows that this differential is statistically significant at the .01 level. It is seen in Table 3.6 that the pattern of occupational differentials within ethnic groups

Table 3.6 Current family size (net age and marital status) by ethnicity and respondent's last occupation. Unadjusted and adjusted deviations by ethnicity.

Ethnicity	RESPONDENT'S LAST OCCUPATION				DEVIATIONS FROM GRAND MEAN	
	White collar	Clerical & serv.	Blue Collar	None	Unadjusted	Adjusted
	(1)	(2)	(3)	(4)	(5)	(6)
British	-.53	-.20	.35	.06	-.19	-.17
German	-.50	.05	.85	-.11	.06	.03
French	-.13	.30	xxx	1.05	.39	.34
Irish	-.60	.23	xxx	xxx	.11	.17
Other W.E.	-.08	-.08	xxx	.73	.05	.07
Ukrainian	-.21	-.09	-.74	.68	-.02	-.04
Other E.E.	-.04	-.17	xxx	xxx	-.03	.02
Other	-.55	.16	xxx	.48	.07	.01
Total	-.36	-.04	.10	.45	.00	.00
N	214	613	61	127	1015	1015

xxx Category contains fewer than 10 cases.

Note: The sample size is reduced from 1045 due to missing data on ethnicity.

is generally similar to the overall occupational differentials. The four more obvious exceptions to this rule are the following: the highest fertility occurs in the blue collar rather than "no last occupation" category for the British and German groups; the lowest fertility occurs in the blue collar group for Ukrainians and the clerical and service group for Other Eastern European. These interactions, however, do not attain statistical significance, so that we are justified in calculating the adjusted means. The range of differentials is here reduced from 0.58 children to 0.51 children. Again, the basic observation is that differentials by ethnicity are essentially unchanged after an additive adjustment is made for respondent's last occupation.

Both respondent's income in 1973 and family income in 1973 have negative relations to current fertility (Tables 3.7 and 3.8). The range of differences among the categories studied are in the order of 0.63 children for respondent's income and 0.80 children for family income. These differentials are significant at the .01 level (Tables B.6 and B.7). There are not many exceptions to the inverse relation within ethnicities. On respondent's income, the French and German have a highest fertility for income in the category under $3,000 rather than "nil". The Other Eastern European group has u-shaped relation with lowest fertility at incomes under $3,000. For family income, we might note the slight evidence of direct relations between income and fertility among Irish with incomes of $10,000+ and among Other Eastern Europeans with incomes of $7,000+. The adjusted means are again highly similar to the class means, the ranges are identical

Table 3.7 Current family size (net age and marital status) by ethnicity and respondent's income in 1973. Unadjusted and adjusted deviations by ethnicity.

Ethnicity	RESPONDENT'S INCOME IN 1973				DEVIATIONS FROM GRAND MEAN	
	Nil	Under $3,000	$3,000+	Missing data (a)	Unadjusted	Adjusted
	(1)	(2)	(3)	(4)	(5)	(6)
British	.28	-.14	-.46	-.17	-.19	-.19
German	.17	.21	.00	-.12	.06	.08
French	.62	1.15	-.13	.22	.39	.40
Irish	xxx	.73	-.07	-.24	.11	.14
Other W.E.	.39	.52	-.56	-.03	.05	.02
Ukrainian	xxx	-.02	-.40	.17	-.02	-.02
Other E.E.	.13	-.30	-.13	.15	-.03	-.03
Other	.35	.02	-.39	.35	.07	.07
Total	.33	.17	-.30	.00	.00	.00
N	121	273	377	244	1015	1015

xxx Category contains fewer than 10 cases.

a) Question on income not asked of respondents who were never married and not living with someone.

Note: The sample size is reduced from 1045 due to missing data on ethnicity.

Table 3.8 Current family size (net age and marital status) by ethnicity and family income in 1973. Unadjusted and adjusted deviations by ethnicity.

Ethnicity	FAMILY INCOME IN 1973				DEVIATIONS FROM GRAND MEAN	
	Under $7,000	$7,000-$9,999	$10,000-$14,999	$15,000+	Unadjusted	Adjusted
	(1)	(2)	(3)	(4)	(5)	(6)
British	-.14	-.05	-.08	-.42	-.17	-.14
German	.22	-.01	.51	-.60	.10	.06
French	.46	.97	.31	-.68	.32	.27
Irish	xxx	-.02	-.48	.19	.08	.10
Other W.E.	.58	.21	.14	-.28	.14	.13
Ukrainian	.32	.16	-.07	-1.00	-.13	-.15
Other E.E.	-.02	-.51	-.27	-.06	-.17	-.12
Other	1.27	xxx	-.30	-.44	.15	.14
Total	.40	.08	.02	-.40	.00	.00
N	114	163	239	194	710	710

xxx Category contains fewer than 10 cases.

Note: The sample size is reduced from 1045 due to missing data on one or more of the variables.

for the respondent's income while they are reduced from 0.49 to 0.42 for family income.

By way of conclusion to this section, it is worth emphasizing that only very minor changes are made in mean ethnic fertilities through adjustment for ratings on the background factors considered separately. Looking at the last two columns of each of Tables 3.2 to 3.4 and Tables 3.6 to 3.8, there are only four cases where the adjusted mean for a given ethnic group is different from the unadjusted mean by more than 0.05 children (and the largest adjustment is of 0.10 children). Two of these changes involve a reduction of the deviation associated with that ethnicity: the French group when religion is controlled (Table 3.2) and the Other group when respondent's occupation is controlled (Table 3.6). In the other two cases the deviation (from the grand mean) associated with a given ethnicity is increased by more than 0.05 children when a background factor is controlled: the Irish group when respondent's last occupation is controlled (Table 3.6) and the Ukrainians when religion is controlled (Table 3.2). The pattern that is emerging would thus indicate that the background factors can be held responsible for some but certainly not all the ethnic fertility differentials under investigation.

3.6 Background factors acting together

The objective of this section is to continue the MCA with the control factors working together and to present the results of the multiple regression analysis.

In the MCA, adjustments are made for the five following variables: respondent's religion, residence in youth, education, oc-

cupation and income. It was found earlier that ethnicity and education interact; thus results are presented at the various levels of education rather than adjusting for education (Table 3.9). However, since this interaction only reached the .10 level of statistical significance, the results adjusting for all five background factors are also presented. Given the small sample sizes, particularly at the lowest level of education, the results must be interpreted with caution. The beta weights given at the bottom of Table 3.9 are a measure of the variable's usefulness once the other variables in the model have been held constant. The beta weights for ethnicity, religion and occupation tend to be noticeably higher at the lowest level of education that at the other levels. At this low educational level, ethnicity emerges as the most useful variable. Though it is difficult to compare standardized coefficients across groups, this would indicate that ethnicity is a more crucial variable at lower levels of education.

Comparing the unadjusted and adjusted deviations from the grand mean, the amount of variation by ethnicity tends generally to be reduced after adjustments, but this reduction is only in the order of 30 percent even when education is included in the model. Neglecting cases with sample sizes of less than ten, there are ten adjustments in Table 3.9 involving more than 0.10 children. That is, 28 percent of adjustments are in the order of more than 0.10 children. At "all education levels", the largest adjustment is from 0.41 to 0.21 in the deviation associated with the French group (Columns 14 and 15). In this last set of columns, there are no cases where the ranking of a given ethnicity changes by more than two places between the unadjusted and adjusted deviations from the grand mean. The largest change in

Table 3.9 Unadjusted and adjusted deviations in mean current family size (net age and marital status) by ethnicity within different levels of respondent's education. Beta weights for background factors and multiple correlation coefficient for all factors together.

	0-8 years education			9-13 years educ.			Other education			Some univ. educ.			All educ. levels		
		Deviations			Deviations			Deviations			Deviations			Deviations	
Ethnicity	N	Unadj.	Adj.	N	Unadj.	Adj.	N	Unadj.	Adj.	N	Unadj.	Adj.	N	Unadj.	Adj.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
British	7	-.92	-.86	140	-.16	-.13	79	-.21	-.10	53	.10	.10	279	-.17	-.08
German	11	-.00	-.08	64	-.16	-.12	42	.31	.32	19	-.12	-.16	136	.02	.01
French	7	1.69	2.00	54	.34	.22	21	.18	-.08	12	-.04	-.17	94	.41	.21
Irish	7	.96	1.23	40	.14	.22	20	.10	.11	13	-.30	-.17	80	.10	.17
Other W.E.	18	-.15	-.16	58	.12	.11	37	.06	.09	28	.10	.13	141	.05	.06
Ukrainian	10	-1.18	-.94	69	.06	.03	24	.10	-.15	19	-.17	-.11	122	-.01	-.11
Other E.E.	8	-.17	-.26	31	-.14	-.13	23	-.03	-.14	11	.03	.01	73	-.06	-.08
Other	11	.51	.13	24	.10	.10	17	-.11	-.09	18	-.03	-.11	70	.08	.04
Total	79	.00	.00	480	.00	.00	263	.00	.00	173	.00	.00	995	.00	.00
BETA															
Ethnicity	.43			.11			.10			.11			.08		
Religion	.23			.06			.12			.13			.07		
Residence	.09			.11			.11			.03			.03		
Occupation	.22			.12			.19			.09			.12		
Income	.04			.13			.21			.21			.14		
Education													.17		
MULTIPLE R	.31			.19			.24			.16			.27		

Notes: 1) When deviations from the grand mean are adjusted they are adjusted for respondent's religion, residence in youth, occupation, income (and education in the last set of columns).

2) The sample size is reduced from 1045 due to missing data on one or more of the variables.

rank orders involves Ukrainians replacing British as the least fertile group once adjustments have been made for the additive effect of the five background factors.

Table 3.10 presents a similar analysis but this time education is completely left out of the picture and both current and expected family size (always net age and marital status) are considered as dependent variables. The results for current family size are largely similar to that of the previous table, again the largest change is a reduction of the positive differential associated with the French group when controls are made for background factors. Looking back at previous tables, it appears that it is the adjustment for religion that is largely responsible for this reduction. That is, of the adjustments affecting the French group in Table 3.2 to 3.8, the largest are those for religion (Table 3.2). It is worth mentioning that, with the exception of religion, the beta weights associated with the background variables are lower for expected family size than for current family size. We note also that there are relatively large adjustments in the expected fertilities of the British, French and Ukrainian groups (Table 3.10 Columns 5 and 6). It would thus appear that adjustments for background factors have more influence on the deviations in expected family size than on those for current family size. On the other hand, the original deviations in expected family size were larger (Column 5 compared to Column 2). Considering the reduction in the range of ethnic deviations, it is seen that they are reduced by 26 and 27 percent respectively for current and expected family size through adjustments for these four background factors. This latter comparison

Table 3.10 Unadjusted and adjusted deviations in current and expected family size (net age and marital status) by ethnicity. Beta weights for background factors other than education and multiple correlation coefficient for all factors together.

	CURRENT FAMILY SIZE			EXPECTED FAMILY SIZE		
		Deviations			Deviations	
Ethnicity	N	Unadj.	Adj.	N	Unadj.	Adj.
	(1)	(2)	(3)	(4)	(5)	(6)
British	279	-.17	-.10	259	-.16	-.02
German	136	.02	.01	131	.03	.05
French	94	.40	.25	89	.54	.30
Irish	81	.11	.20	78	.09	.10
Other W.E.	141	.05	.04	134	-.08	-.05
Ukrainian	122	-.01	-.09	113	.03	-.11
Other E.E.	73	-.06	-.07	71	-.07	-.14
Other	70	.08	.04	69	-.03	-.07
Total	996	.00	.00	944	.00	.00
BETA						
Ethnicity		.08			.07	
Religion		.07			.16	
Residence		.05			.02	
Occupation		.15			.11	
Income		.15			.09	
MULTIPLE R		.23			.20	

Notes: 1) When deviations from the grand mean are adjusted they are adjusted for respondent's religion, residence in youth, occupation and income.

2) The sample size is reduced from 1045 due to missing data on one or more of the variables.

would therefore indicate that the background factors have similar influences on the two fertility measures.

Another way to measure the explanatory power of ethnicity, beyond that of the other variables under consideration, is to re-run the program but this time dropping the ethnicity variable from the model. It is found in this way that ethnicity contributes an additional 10 percent to the explained sum of squares for each of the dependent variables, beyond that contributed by religion, residence in youth, occupation and income.(4)

In turning to the multiple regression analysis, we might note that the statistical model does not differ greatly from that involved in the multiple classification analysis. In a sense, all it really adds is the assumption of linearity. In addition, the regression analysis is more limited since it can only be used on variables that have at least ordinal measurement. The MCA was used on all ethnic groups together in order to adjust the ethnic deviations for the effects of the background factors. Regression analysis is applied to each ethnic group separately. The objective here is to determine whether the background factors have similar effect (sign and size of coefficients) in the various ethnic groups. Again, the two approaches are not completely different. They do, however, present slightly different ways of dealing with the control variables.

Since religion and occupation are essentially nominal variables, only the three remaining variables (respondent's income, education and residence in youth) are preserved for the multiple regression analysis. The results of this procedure are presented in Table 3.11

Table 3.11 Regression coefficients and standard errors by ethnicity using respondent's income, education and residence in youth as independent variables and current family size (net age and marital status) as dependent variable.

		COEFFICIENTS AND (SIGMAS)			
Ethnicity	N	Income	Education	Residence	Multiple R
	(1)	(2)	(3)	(4)	(5)
British	222	-.12 (.05)*	-.18 (.10)	.13 (.10)	.22
German	104	-.16 (.11)	-.22 (.16)	-.10 (.16)	.22
French	73	-.28 (.15)	-.38 (.30)	-.14 (.25)	.30
Irish	62	-.13 (.10)	-.50 (.19)*	.25 (.19)	.45
Other W.E.	105	-.42 (.12)*	-.34 (.19)	-.18 (.20)	.39
Ukrainian	90	-.28 (.11)*	.14 (.19)	.05 (.16)	.28
Other E.E.	53	-.12 (.15)	-.01 (.30)	.05 (.22)	.13
Other	49	-.27 (.11)*	-.45 (.16)*	-.25 (.19)	.54
Total	758	-.19 (.04)*	-.23 (.06)*	.01 (.06)	.27

* Coefficient is twice its standard error.

Note: The sample size is reduced from 1045 due to missing data on one or more of the variables.

for current family size and Table 3.12 for expected family size. These tables give the regression coefficients, with their standard errors and the multiple correlation coefficient for each equation. The coefficients for the "residence" term are never twice as large as their standard errors (i.e. do not reach the .05 level of significance). For income and education, six of the eight coefficients within ethnicities reach this level of significance on current family size but only three of them on expected family size.

Looking first at the terms in current family size, income exerts a uniformly negative influence on fertility. This negative influence is strongest for the Other Western European, Ukrainian, French and Other groups. Education exerts the largest influence except for Other Western European, Ukrainian and Other Eastern European groups where income exerts the strongest influence. This influence is negative in all groups except for the Ukrainians where it is weakly positive. Higher education tends to bring down the family size particularly in the Irish and Other groups. Residence has very little influence after controlling for income and education though urban residence in youth is associated with higher fertility for Irish and with lower fertility for the Other ethnic group.

Table 3.12 points to essentially similar findings with slightly lower explained variance. Education again generally emerges as the strongest variable. Education is positively related to fertility for the Other Eastern Europeans as well as the Ukrainians. On income, the Irish group here takes exception with its slight positive relation.

Table 3.12 Regression coefficients and standard errors by ethnicity using respondent's income, education and residence in youth as independent variables and expected family size (net age and marital status) as dependent variable.

Ethnicity	N	COEFFICIENTS AND (SIGMAS)			Multiple R
		Income	Education	Residence	
	(1)	(2)	(3)	(4)	(5)
British	205	-.05 (.06)	-.23 (.12)	.16 (.11)	.19
German	100	-.04 (.12)	-.04 (.19)	-.14 (.18)	.09
French	69	-.15 (.18)	-.59 (.34)	-.02 (.29)	.28
Irish	61	.04 (.15)	-.50 (.28)	.54 (.27)*	.37
Other W.E.	101	-.38 (.12)*	-.05 (.20)	.02 (.21)	.34
Ukrainian	83	-.30 (.11)*	.16 (.20)	.07 (.17)	.29
Other E.E.	53	-.15 (.15)	.31 (.30)	-.28 (.22)	.18
Other	48	-.15 (.12)	-.56 (.19)*	-.26 (.22)	.51
Total	720	-.12 (.04)*	-.26 (.07)*	.05 (.07)	.20

* Coefficient is twice its standard error.

Note: The sample size is reduced from 1045 due to missing data on one or more of the variables.

It is difficult to draw extensive conclusions from this regression analysis. In general, we would seem to be justified in claiming that it has not provided an explanation for the observed ethnic differences. On the whole, the variables income, education and residence in youth seem to exhibit similar influences within each group. As noted above, there are exceptions to this rule but these exceptions at least do not involve the British and French groups for which the largest differentials have been observed.

Needless to say, there are several other meaningful ways in which the variables considered in this chapter could be combined. One could, for instance, devise more complex models to analyze indirect effects. However, we are here basically interested in ethnic differentials. Sets of factors are introduced simply to see if they can account for the observed ethnic differences. Thus it was not judged necessary to test more complex models nor to attempt other combinations of the variables. In addition, alternative considerations would always be limited by the sample sizes for the various ethnic groups.

The author's general conclusion to this chapter is that background factors can be held responsible for some of the fertility differences associated with ethnicity but that they cannot be said to explain all the ethnic differential. Controlling for background factors generally reduces but does not eliminate differences among ethnicities. Differences encountered throughout the chapter are rather small; after all, completed family size is only 1.7 children and expected family size is 2.7 children (no adjustments for age and marital status). We are therefore working with rather subtle distinctions that

often do not reach statistical significance. However, the general evidence presented would tend to disprove the characteristics hypothesis. That is, differences among ethnicities are not simply a reflection of the matrix of general demographic, social and economic attributes that characterizes these subgroups.

CHAPTER 4

ASSIMILATION FACTORS AND THE EXPLANATION OF ETHNIC FERTILITY DIFFERENTIALS

> L'Angleterre a conquis la Nouvelle France, mais elle n'a pu détruire ou assimiler les colons que nous y avons laissés.
>
> (Siegfried, 1906: 1)

4.1 Assimilation and its relevance to population and fertility

At a U.N.E.S.C.O. meeting of demographers in 1950, assimilation was defined as "a psychological, socio-economic and cultural process resulting in the progressive attenuation of differences between the behaviour of immigrants and nationals within the social life of a given country" (Borrie, 1954: xiv). Assimilation can thus be taken as a process whereby different groups become increasingly similar to one another. Equivalently, it can be viewed as a process whereby individuals within these groups stand out less as having a separate identity. Assimilation is to be distinguished from "integration" which would be two or more groups adapting themselves to the point of accepting and valuing each other's distinct contributions to a common political and social life (Price and Zubrzycki, 1962: 59). It has become somewhat traditional to distinguish behavioural and structural assimilation. Behavioural assimilation, sometimes called acculturation, involves the acquiring of the behaviour, and possibly also the tought patterns and values, of a different culture. Structural assimilation means the dispersion of a given group within the institutions (social, occupational, political) of the society in such a way as to make the distribution of this group similar to that of other groups. There are a number of formal or analytic schemes that pursue these distinctions in

more depth. Eisenstadt (1954: 11) suggests three main indices of "full absorption" of immigrants: acculturation, personal adjustment and complete structural dispersion. Gordon (1964: 70-71) identifies seven subprocesses in assimilation: cultural or behavioural, structural, marital, identification, attitude receptional, behavioural receptional and civil assimilation. These more elaborate distinctions will not be pursued in this thesis. We still instead retain the simpleminded notion of "reduction of differences", particularly as these can be measured through length of Canadian residence, language use and intermarriage.

It can almost be taken as a foregone conclusion that assimilation processes are important to the study of societies. Particularly for such countries as Australia, Canada, Israel and the United States, it could be said that their histories, at least in part, can be written in terms of different waves of immigration, their absorption and their influence on subsequent waves (Eisenstadt, 1954: 241). On the other hand, some authors propose that the study of assimilation may be losing its relevance as an area of investigation. Borrie (1960: 197) and Richmond (1967: 278; 1969: 22-23), for instance, propose that since mobility is functionally necessary in industrial societies, concepts such as assimilation may no longer have any sociological significance. That is, immigrants do not just arrive and become assimilated into a monolithic society. Jones (1967b: 210) reaches an essentially similar conclusion when he says in regard to Canada that "the trend toward relinquishing subcultural patterns... does not represent simply a conformity of minority ethnic groups to the values and customs of the majority people... but to secular values and customs which emerge from

certain elements in modern industrial societies". Though it can be argued that the study of assimilation is losing its sociological significance, this author would hold that the greater danger is in neglecting to study the processes of assimilation versus ethnic self-maintenance. If these processes are not studied, it becomes easy to simply assume that they are occurring or not, without verifying these assumptions.

It has become popular to use such expressions as "anglo-conformity", "melting pot" and now, particularly in Canada, "ethnic pluralism". Unfortunately, these orientations, which are mostly political, can sometimes provide the intellectual framework for information collection and analysis. Fishman (1966: 15) thus criticizes American scholars for having given much more attention to de-ethnization than to equally important processes of ethnic self-maintenance. Both are important social processes which should not be taken for granted. They should instead be subjected to careful study.

The consideration of assimilation or, conversely, of "ethnicity in depth", has a particular relevance to the context of the present study. If fertility is influenced by value orientations and norms that are specific to ethnic groups, then it may be expected that individuals who have retained a stronger link with their respective ethnic group would also exhibit more extreme forms of the fertility behaviour that is associated with this group. Such is the essential idea of the "particularized ideology" hypothesis for the explanation of religious or ethnic differentials. The hypothesis would be that fertility reflects normative considerations internalized by participants in a

given society or subgroup. One way to test this hypothesis is to differentiate individuals who show stronger ties with these subgroups from those with weaker ties. The expectation would be that individuals who are more strongly associated with the given groups will be even more extreme in the behaviour that is typical of that group. Or, inversely, individuals less associated with the groups, and thus more assimilated into the larger society, should have given up much of the distinctiveness which is typical of their group. That is, their ethnicity would become a purely formal characteristic with little or no behavioural consequence.

The study of the effect of assimilation on ethnic fertility differentials is also of practical utility in making projections of future fertility and population size. There are several basic unknowns that must be analyzed before such information could be used in projections: whether or not given groups are becoming assimilated, the speed of that assimilation which may be taking place, and the relevance of assimilation to questions of fertility differences. The speed at which assimilation might occur cannot be taken as given. It may also be that ethnic differences are retained even after controlling for the more obvious indicators of assimilation. These are some of the topics under investigation in this chapter.

There are very few previous studies that relate directly to the relevance of assimilation to fertility differentials. We have already referred to the North American literature on length of residence or nativity (Section 2.1). In the United States censuses of 1910 and 1940 for ever married white women, those of foreign or mixed parentage

(second generation) generally had highest fertility while those of foreign birth (first generation) were next and native born had lowest fertility. By 1950 the foreign born had lower fertility than the native born. ' In 1960 the first generation once again had lower fertility than the second generation. For Canada, the analysis of the 1941 census showed that differences in fertility between foreign and native born were not significant after controlling for religion, residence, education and mother tongue. In 1961, fertility was highest when both wife and husband were native born, intermediate when one or the other was foreign born and lowest when both were of foreign birth. The Toronto study also found that, even after controlling for other factors, foreign born had lower fertility than native born. Thus Kalbach (1970: 104) is justified in concluding that native born fertility has tended to exceed that of foreign born women in Canada during the past 30 years. Regarding differences among ethnic groups, Richmond (1967: 138) found in his 1967 survey of 645 post-war immigrants to Canada that the British group and the East European refugees had relatively low birth rates in Canada as compared to the remainder of the sample.

Long (1970b) has summarized some of this literature in the context of both internal and international migration. Except when there are wide inter-regional differences, the fertility of migrants within the United States and within Canada is generally lower than that of nonmigrants in both the region of origin and the region of destination. Regarding migration between the United States and Canada, the ever married women aged 25-54 born in Canada but living in the United States had lower fertility than the native born of either country. However, those born in the United States and living in Canada had

fertility intermediate between the native born of the two countries (idem, p. 310). As a whole, the excess fertility of the native white ever married over the foreign born was as follows (idem, p. 313):

Ages	United States, 1960	Canada, 1961
25-34	0.45 children	0.69 children
35-44	0.29 children	0.81 children
45-54	0.12 children	0.72 children

Various hypotheses have been proposed in order to interpret the lower fertility of migrants. The economic hardships of migration may depress fertility, or migrants may have a preference orientation which emphasizes economic well-being rather than family formation. However, Cho et al. (1970: 174) find that much, if not all, of the often observed differentials by migration statuses are owing primarily to age, marital status, or some other exposure to the risk of childbearing.

Since the influences of age and marital status have been systematically standardized in this analysis, it will be possible to check for the differences at least between native and foreign birth. It will also be possible to analyze in detail the influence of more refined assimilation measures on fertility in general and on ethnic fertility differentials in particular.

4.2 Measures of ethnic assimilation

The objective of this section is to describe some previously used measures of assimilation and to indicate briefly some of the results obtained with respect to ethnic assimilation. This study will make use of the three following measures: generation of Canadian residence, language use and intermarriage. However, before discussing these, we will first touch on some other measures that have been adopted.

There are a number of authors who have attempted to get directly at structural assimilation or the dispersion of groups within the institutional complex of a society. For instance, Vallée et al. (1957) looked at the Canadian political sphere and found that members of different ethnic groups did not have equal likelihood of obtaining official posts. French Canadians were at a disadvantage in comparison to British Canadians in the civil service appointments immediately below the rank of deputy minister. The non-British non-French were under represented both at top government levels (Cabinet, Supreme Court) and in the senior civil service and foreign service (idem, pp. 545-546). Porter (1965) has demonstrated similar results for the various Canadian elites. The British are over represented, the French are somewhat under respresented while the other groups (with the occasional exception of Jews) are hardly represented at all. This pattern is strongest for the economic elite and weakest for the labour elite (idem, pp. 286, 347, 389, 441, 586, 501). A further study of the occupational structure showed that in 1961 the British were at the top followed by German, Scandinavian, Dutch and French. The Italians, Polish, Ukrainians and groups from South Eastern Europe were at the lower end of the occupational spectrum. This pattern had changed very little since 1931 except that the French had slipped, especially in top level occupations, from their earlier position as the second group (idem, pp. 81, 86, 90). Hutchinson's (1956) study of the occupational distribution of the foreign stock in the United States showed that the foreign born have always been quite specialized occupationally. The second generation has an occupational distribution close to that of the whole white population. This last generalization is more true for the

English speaking and less true for the Polish, Hungarian, Czech, Yugoslavian, Greek, French Canadian and Mexican stocks (idem, p. 277). Helling (1962) also studied the occupational integration of Germans in Toronto and Detroit. He found that German migrants were more integrated into their work groups in Detroit than in Toronto.

Another type of distribution that can be studied is the geographic one. The study of segregation patterns is of particular relevance since it may be at the basis of a more general lack of integration into and association with the surrounding society. This is the emphasis which Lieberson (1963) took in the study of ten cities in the United States. Though comparisons among specific ethnic groups are not shown, there is indication of decreasing segregation among foreign born groups between 1910 and 1950. In addition, at least in 1930, the second generations are less segregated than the first (idem, p. 56). Jones (1967a) showed that residential concentration in Melbourne is associated with occupational concentration and ethnic inmarriages. In 1954 and 1961 the Maltese, Greeks and Italians were the most concentrated ethnic groups, the British and the New Zealanders were the least concentrated, followed by the Germans, Poles and Dutch (idem, pp. 411-417).

Other researchers have emphasized psychological factors. The emphasis here is somewhat shifted from the nature of the receiving society to motivation and other personal factors. For instance, Hobart et al. (1966) formed a variable called "strength of Ukrainian identification". Their Alberta sample indicated a rather high interest in perpetuating certain aspects of traditional Ukrainian culture. In

addition it was found that three-quarters of the sample did not include any non-Ukrainians among their closest friends (idem, pp. 254, 419). When Barclay (1971) suggested that after one generation the Lebanese Muslim family is little different from other families in Canada, his suggestion was based essentially on value orientations and role relations. Similarly, Helling (1962) found that the role mastery of individuals was important to acculturation. Sheriff (1974) finds no support for the hypothesis that value differences are responsible for the English-French differences in the specializations of engineers in Montreal.

Though measures of institutional distribution, geographic distribution and psychological adaptation are valid indicators of assimilation, they cannot be used in this study because appropriate data were not collected or because sample sizes are insufficient. The first measure that will be used is the generation of Canadian residence. This measure is essentially an elaboration of the "nativity" variable. The assumption is that assimilation increases over time or over generations. This assumption is generally supported in the literature (see, for instance, Hutchinson, 1956 and Hobart et al., 1966, mentioned above). Palmer (1972: 257) in fact proposes that ethnicity has remained more important in Canada than in the United States simply because immigrants have continued to come to Canada in substantial numbers. Especially in comparison to the population base, the proportion of foreign born in Canada has always been relatively high. Other authors (e.g. Hansen, 1938: 478-479), however, have suggested that the third generation may experience a "resurgence of national spirit" or a "third generation interest". Lieberson (1963: 60) found little or no

association between the relative times of arrival of ethnic groups and their levels of residential segregation in 1930. It is thus necessary to be careful in using length of residence as an indicator of assimilation. One would prefer measures that require weaker assumptions.

Language use will be taken as the second assimilation measure. In this we follow a tradition that is being established at least in the context of the relative positions of English and French in Canada. Lieberson (1970: 55) noted that for the first time in 1961, French was slightly under represented as a mother tongue among small children (ages 0-4) in comparison to its position among women in the child-bearing ages (15-44). The non-English non-French mother tongues have been under represented among small children since 1931. Though language is not the only basis on which ethnic groups can retain their boundaries, Lieberson found that it was at least more important than religion for the resistence of assimilation among ethnic groups in contact (idem, p. 250). By comparing ethnic group and mother tongue, Maheu (1970) found strong evidence indicating that outside of the province of Quebec the French mother tongue has been decreasing continuously. This mother tongue group is thus increasingly concentrated in Quebec. Joy (1972) arrived at similar results by comparing French mother tongue to French ethnicity in the various census divisions. In areas where at least 30 percent of the population was of French mother tongue, the language has lost ground only slightly. Heavy assimilation is noticeable when the French population is outnumbered by a larger proportion and particularly when it is less then five percent of the total population (idem, p. 32). Joy also notes that in the Western Provinces mother tongue assimilation is highest for the

youngest age groups (idem, p. 39). Maheu (1973) and Castonguay and Marion (1974) have continued the analysis to the 1971 census which also collected data on the language used in the home. In Quebec, there were 3,000 more people using the French language than the number of people of French mother tongue; however, there were 99,000 more using the English language than the number of people of English mother tongue (Maheu, 1973: 20). Castonguay and Marion (1974) have looked at the 1971 levels of assimilation (proportion of French ethnicity that no longer has French mother tongue) in the three geographic regions that Joy had outlined. These regions are essentially the "interior of Quebec", a "bilingual zone" which comprises the North and West of Quebec as well as adjoining regions of Ontario and New Brunswick, and "the remainder of Canada". Assimilation was nil for the interior of Quebec (and there were no net gains), 2.0 percent for the bilingual zone and 48.6 percent for the remainder of Canada (Castonguay and Marion, 1974: 30). Thus there are several precedents for the use of language as an assimilation measure. We might also note that Charbonneau and Maheu (1973) have studied the linguistic transfers in Quebec's ethnic groups. Pohorecky and Royick (1969) emphasize linguistic change in studying the Anglicization of Ukrainians. Similar emphasis is found in Fishman (1966) who estimates, in spite of the absence of such data since 1940, that eleven percent of the population of the United States had a non-English mother tongue in 1960 (idem, p. 392).

The third measure will focus on intermarriage or, conversely, homogamy. At least at the individual level, this is a rather decisive criterion of assimilation. Gordon (1964) lists "amalgamation" as one

of the seven subprocesses of assimilation. Since Drachesler's (1921) book on Intermarriage in New York City, sociologists have made extensive use of this criterion. One can argue at length about ethnic identifications or nationalist asprations, but the "cold hard statistics of intermarriage cannot be ignored nor their significance denied" (Price, 1963: 254). On the other hand, Marcson (1950) argues that a group can acquire the traits of a surrounding society without intermarriage. Therefore he proposes that intermarriage is not an index of assimilation. Price and Zubrzycki (1962) answer that Marcson's criticism applies to integration and not to assimilation. A pattern of persistent inmarriage, and thus the possibility of distinguishing a group from others, effectively precludes complete assimilation. Conversely, a high rate of intermarriage, at least in a society that is liberated with respect to sex roles, results in the group becoming virtually indistinguishable from the larger society.

A number of indices have been developed to measure intermarriage. The most common measure used is the proportion of endogamous and/or exogamous marriages. The latter may be broken down into the proportions of a given group that marry other specific groups. These statistics can be either male or female dominant. A more sophisticated measure, called the "index of homogamy", was developed by Gini (1915). This index makes use of data from a two-by-two table classifying each partner as belonging or not belonging to a given group[1]. The index reaches unity when there is complete inmarriage. In discussing this measure, Price and Zubrzycki (1962: 66-67) find that it can convey an impression of reliability in spite of the dubious quality of basic data. They thus prefer the simple proportions mentioned above. Since

the rate of intermarriage depends on the size of each group, Glick (1960) uses the ratio of actual intermarriages divided by those that can be expected by chance. The main purpose of the study of intermarriage in this thesis is not to obtain aggregate rates of assimilation for the various groups, but rather to derive indices by which to classify each respondent. Since there is already a Canadian tradition in the use of simple proportions (see Tables 4.1 and 4.2), these proportions will be used in summarizing group differences. Price and Zubrzycki (1962) have an excellent analysis of the difficulties in the use of such statistics. The main problem, as it applies here, is that people already married on arrival to Canada have no possibility of becoming assimilated according to this measure. We will say that they have no possibility of "assimilation through their present marriage" but that they may assimilate in accordance with other measures.

It is worth summarizing some of the findings on ethnic intermarriage or homogamy in North America. Kennedy (1944, 1952) studied interethnic and interreligion mixtures in New Haven, Connecticut. The proportion of endogamous marriages with respect to national origins were as follows (Kennedy, 1944: 332; 1952: 56):

1870:	91.2%
1900:	76.0%
1930:	65.8%
1940:	63.4%
1950:	61.2%

There was thus a somewhat stable pattern since 1930. She notes more inmarriages for the Jews, Italians, British, Irish and Poles as contrasted with the Germans and Scandinavians. Kennedy also finds that interethnic marriages generally occur within a given religious group.

She thus advances that notion of the "triple melting pot" (Protestant, Catholic, Jew).

Fichter (1958: 438) finds an even lower rate of endogamy (27.8%) among the parents of a parochial school in the Midwest. Kiser (1949) drew attention to the intermarriage of foreign white stock in the State of New York, exclusive of New York City. In 1940, this group showed more endogamy for the Italian, Polish and Russian as compared to the Canadian, North West European and Central European origins. For each country of origin, a direct relation was noted between intermarriage and length of residence. The latter was measured by the categories "foreign born", "foreign parentage" and "mixed parentage" (idem, p. 127).

In Canada, we first have statistics presented by Tracy (1942: 302) showing births to parents of different racial origins as a percentage of total births:

	Canada	Quebec	Outside Quebec
1926	10.0%	4.1%	13.3%
1936	14.1%	4.3%	19.3%

Hurd (1942, a) has broken down these types of figures over some broad ethnic groups for the years 1921, 1931 and 1941 (Table 4.1). These data show decreasing endogamy and increasing marriage into the British group over the period with more changes between 1931 and 1941 than between 1921 and 1931. Scandinavian linguistic groups had highest assimilation while Latin, Greek and Slavic groups were lowest. Compared to their general level of exogamy, the Slavic women had a high rate of marriage to men of British origin. Hurd (1942: 548) further analyzed the 1931 data to find that five variables account for approximately

Table 4.1 Percent of married women of Continental European ethnic origins married to same ethnic origin and into British origins, by geographical and linguistic groupings of origins. Canada. 1921, 1931, 1941.

	Based on parentage of children born in Canada in 1921, 1931, 1941					
	ENDOGAMOUS			INTO BRITISH ORIGINS		
	(1)	(2)	(3)	(4)	(5)	(6)
	1921[1]	1931	1941	1921[1]	1931	1941
GEOGRAPHICAL GROUPING						
N.W. European	65.7	62.4	47.7	22.3	25.8	35.0
S., E. and C. European	86.5	82.0	65.5	2.1	4.5	15.0
LINGUISTIC GROUPING						
Scandinavian	56.4	47.9	26.7	24.7	33.7	48.0
Germanic	69.3	67.1	54.6	1.3	5.2	21.3
Latin and Greek	92.4	88.2	59.1	2.4	3.9	13.4
Slavic	85.6	80.6	62.1	21.4	23.4	31.0

1) Exclusive of the Province of Quebec.

Sources: Hurd, a: 98 and 100.

Hurd, 1942: 642.

70 percent of the differences in the proportions of the several non-British non-French stocks who had intermarried. These variables were: length of North American residence, surplus of males, size of groups, an index of geographic segregation, and percent urban.

The tabulations of the 1961 census appear to be the only set that provide crosstabulations of husband's and wife's ethnicities. The published data, which are male dominant, are presented in Table 4.2. These data show high endogamy for Jewish and Native Indian and Eskimo with high outmarriage for Scandinavians. The French husbands also stand out as having low intermarriage with British females.

Using the vital registration froms from the Province of Saskatchewan for the period 1951-1961, Stefanow (1962) documented an increasing rate of Ukrainian outmarriage. The ethnic distribution of grooms marrying Ukrainian brides was as follows (idem, p. 11):

	1951	1961
Ukrainian	62%	43%
British	12%	24%
German	8%	13%
Polish	6%	5%
Scandinavian	3%	3%
French	3%	3%
Other	6%	9%

Adherence to a Ukrainian national church as well as farming and lower status occupations were found to be associated with higer Ukrainian inmarriage; there was no relationship between density of the Ukrainian population and inmarriage rates by area (idem, pp. 94-96).

Table 4.2 Percent of married men married to same ethnic origin and into British origins, by ethnic group. Canada. 1961.

Ethnic group of husband	ETHNIC GROUP OF WIFE	
	Same as husband (1)	British Isles (2)
British Isles	81.2	---
French	88.3	8.5
Other European	57.3	22.5
German	52.0	30.7
Italian	76.6	10.8
Jewish	91.1	3.6
Netherlands	54.9	31.0
Polish	49.0	16.4
Russian	47.7	16.4
Scandinavian	31.2	45.1
Ukrainian	61.8	14.6
Other	60.6	16.0
Asiatic	79.9	10.0
Native Indian and Eskimo	91.8	4.1
Other and not stated	43.9	39.4
All husband-wife families	76.7	8.5

Source: Canada, D.B.S., 1966: p. 6-36.

Palmer (1972: 256-257) presents the following rates of endogamous marriages for Alberta in 1960:

Jewish	87%
Oriental	87%
British	71%
Italian	64%
Ukrainian	63%
Netherlands	60%
German	52%
Other European	49%
French, Polish, Russian, Scandinavian	40%

Considering the seven groups that appear both in Palmer and in Table 4.2, the rankings are equivalent in the two series except for a switch between Orientals and British (second and third ranks).

It may be worthwhile to end this section by enumerating the assimilation variables, and indicating their sources in the questionnaire and the categories into which they have been coded.

Generation of Canadian residence of respondent QQ 1,2,3,4) / Generation of Canadian residence of husband (QQ 159, 160, 161, 162)

1 Third generation or more (abbreviated as "third generation"): native born of native parentage
2 Second generation: born of foreign or mixed parentage or immigrated to Canada before age 12
3 First generation: foreign born and immigrated to Canada at age 12 or more
9 Missing data

Language spoken at home and ability to converse in ethnic language - abbreviated as "language spoken at home" (QQ 23, 24, 25, 26)

1 English is spoken at home and respondent cannot speak language of either of her parent's ethnicities (or both parents are of "English-speaking"* ethnicities)
2 English is spoken at home and respondent can speak language of at least one of her parent's ethnicities (other than "English-speaking"* ethnicities)
3 Language spoken at home is that corresponding to the ethnicity (other than "English-speaking"* ethnicity) of one of respondent's parents
9 Missing data

* "English-speaking" ethnicities: English, Scottish, Irish, Welsh, New Zealand, Australian, "Canadian", "United States".

Ability to converse in ethnic language (QQ 23, 24, 25, 26)
1 Respondent cannot speak language of either of her parent's ethnicities (or both parents are of "English-speaking"* ethnicities)
2 Respondent can speak language of at least one of her parent's ethnicities (for ethnicities other than "English-speaking"*)
9 Missing data

Homogamy of respondent's parents (QQ 23, 24) / Homogamy of respondent (QQ 23, 168)
1 Ethnic intermarriage
2 No ethnic intermarriage
9 Missing data

Homogamy over two generations (QQ 23, 24, 168)
1 All three ethnicities (respondent, respondent's husband, respondent's mother) are different
2 Two of the ethnicities are the same
3 All three ethnicities are the same
9 Missing data on one or more ethnicities

Marriage into British origins (QQ 23, 168)
1 Respondent married into British origin or was originally British
2 No marriage into British origin
9 Missing data on one or more ethnicities

We are following the suggestion of Price and Zubrzycki (1962) in classifying those immigrating to Canada before age 12 with the "second generation". These authors argue convincingly that there is not much difference between a child who immigrated at a young age and the child's sibling who happens to have been born in the new country.

It should be noted that the complete original categories of languages and ethnicities were used in establishing ethnic languages, and intermarriage among ethnicities. Thus, for instance, a Pole marrying a Russian would be an intermarriage though in the tabulations both fall into the category of Other Eastern European. As regards data quality, it is possible that the interviewers occasionally assumed the ethnicities of the respondent's mother and/or husband. For some reason

* See previous page.

or other, respondents may also have misrespresented the ethnicities of the mother and husband. If these types of errors occured, they would tend to reduce the amount of observed ethnic mixture in comparison to the actual mixture. In any case each of these measures has its imperfections. However, through using various measures we will hope to have an adequate indication of the individual's level of assimilation.

4.3 The assimilation of ethnic groups in Edmonton

Before dealing with the effect of these assimilation variables on fertility, it is of interest to consider briefly assimilation as such among the ethnic groups in the GAFS sample. This is done through crosstabulations giving the percentage distributions of the assimilation variables for the various ethnic groups.

Table 4.3 presents the distributions for generation of Canadian residence of respondent. The French, Irish and British groups have highest proportions in the third generation while the Other, Other Western European and Other Eastern European have the largest proportions in the first generation. These rankings are essentially the same when one considers the husband's family (table not presented). When the first generation includes all foreign born, and not only those coming to Canada after age 11, it is found that 19 percent of respondents and 24 percent of their husbands were born outside of Canada.

One of the measures of language assimilation within ethnic groups is summarized in Table 4.4. This is the language spoken at home and the ability of the respondent to converse in the language corresponding to the ethnicity of at least one of her parents. Languages other than English were given preference here in the sense that if the

Table 4.3 Generation of Canadian residence of respondent, by ethnic group.

Ethnicity	RESPONDENT'S GENERATION			Total	N
	Third[1]	Second[2]	First[3]		
	(1)	(2)	(3)	(4)	(5)
British	56.4	29.4	14.2	100.0	285
German	33.3	51.1	15.6	100.0	136
French	77.2	21.8	1.1	100.0	95
Irish	59.2	30.0	10.7	100.0	82
Other W.E.	29.6	45.8	24.6	100.0	144
Ukrainian	52.4	45.4	2.2	100.0	123
Other E.E.	26.1	53.2	20.7	100.0	74
Other	48.0	15.6	36.4	100.0	71
Total	48.4	36.6	15.0	100.0	
N	477	374	159		1010

1) Third generation or more: native born of native parentage.

2) Second generation: born of foreign or mixed parentage or immigrated to Canada before age 12.

3) First generation: foreign born and immigrated to Canada at age 12 or more.

Note: The sample size is reduced from 1045 due to missing data on one or more of the variables.

Table 4.4 Language spoken at home, by ethnic group.

Ethnicity	ENGLISH SPOKEN AT HOME: Engl.-sp. or cannot speak eth. lang.[1]	ENGLISH SPOKEN AT HOME: Can speak eth. lan.[2]	ETHNIC LANGUAGE SPOKEN AT HOME[3]	Total	N
	(1)	(2)	(3)	(4)	(5)
British	99.6	0.4	0.0	100.0	288
German	59.5	36.0	4.5	100.0	137
French	36.3	56.7	7.0	100.0	95
Irish	98.4	1.6	0.0	100.0	82
Other W.E.	64.9	28.5	6.6	100.0	143
Ukrainian	30.0	66.8	3.2	100.0	123
Other E.E.	51.2	39.3	9.4	100.0	74
Other	52.8	26.7	20.5	100.0	70
Total	69.0	26.4	4.6	100.0	
N	670	285	57		1012

1) English is spoken at home and respondent cannot speak language of either of her parent's ethnicities (or both parents are of "English-speaking" ethnicities).

2) English is spoken at home and respondent can speak language of at least one of her parent's ethnicities (other than "English-speaking" ethnicities).

3) Language spoken at home is that corresponding to the ethnicity (other than "English-speaking" ethnicity) of one of respondent's parents.

Note: The sample size is reduced from 1045 due to missing data on one or more of the variables.

respondent's parents were of different ethnicities (say English and French), then the speaking of French at home was sufficient to classify her in the category of "ethnic language other than English spoken at home". The British and Irish are by definition highly assimilated according to this measure. The Other Western European and German groups come next while the Ukrainian, French and Other Eastern European have the lowest proportions in the high assimilation category. It is of interest that only five percent of respondents speak an ethnic language other than English at home while an additional 26 percent can converse in their ethnic language. When the "English-speaking" ethnicities are removed from the sample, these percentages increase to eight and 43 respectively. Thus over 50 percent of the "non-English-speaking" ethnicities can converse in their ethnic language but only eight percent use it regularly in the home.

Regarding intermarriage among ethnic groups, we find that 41 percent of the respondents' parents and 66 percent of married respondents were involved in marriages that were exogamous with respect to ethnicity (tables not presented). Considering both marriages together (Table 4.5), only 28 percent of cases involved the same ethnic group for respondent, respondent's mother and respondent's husband. On this latter dimension, the Irish, Other Western European and British would be the most assimilated while the Other, Ukrainian and German would be the least assimilated. It is possible to compare five ethnicities in Table 4.5 with their corresponding standing on intermarriage for Canada at the 1961 census (Table 4.2). It is seen that the Other Eastern European, German and Ukrainian are equivalently ranked in the two series. On the other hand, the British and French rank low on inter-

Table 4.5 Homogamy over two generations, by ethnic group.

Ethnicity	All three eth. diff.[1]	Two eth. same[2]	All three eth. same[3]	Total	N
	(1)	(2)	(3)	(4)	(5)
British	31.4	44.6	24.0	100.0	225
German	21.3	49.8	28.9	100.0	102
French	32.5	43.1	24.4	100.0	77
Irish	44.0	49.3	6.7	100.0	63
Other W.E.	32.2	46.1	21.7	100.0	117
Ukrainian	12.2	41.5	46.3	100.0	103
Other E.E.	27.3	46.2	26.5	100.0	58
Other	18.2	32.1	49.6	100.0	56
Total	27.6	44.5	27.9	100.0	
N	222	354	225		801

1) All three ethnicities (respondent, respondent's husband, respondent's mother) are different.

2) Two of the ethnicities are the same.

3) All three ethnicities are the same.

Note: The sample size is reduced from 1045 due to missing data on one or more of the variables.

marriage in the 1961 census but high in the Edmonton data. The different ranking of the French group is surely due to its disproportional representation in Edmonton. The unusually high intermarriage of the British in Edmonton is more difficult to interpret. Edmonton's British may be less ethnic-conscious than their Toronto counterparts.

Among the non-British respondents, it was found that 22 percent had married British husbands. Table 4.6 summarizes these data while including the British among the high assimilated group. We note here that the Irish and German have highest intermarriage rates with British while the Ukrainian, Other Eastern European and Other are lowest on this index. The ranking of the German, Other Eastern European and Ukrainian is equivalent to the 1961 census data (Table 4.2, Column 2), but again the French show more intermarriage with the British in the Edmonton sample than in the whole of Canada.

Tables 4.3 to 4.6 have presented four measures of assimilation. It is useful to compare these through the rank ordering of the eight ethnic groups within the various measures. The most assimilated category (first column of each table) was used to establish the following rank order correlations among the assimilation measures:

		1	2	3	4
1	R's generation				
2	Language at home	.05			
3	Homogamy	.43	.48		
4	Marriage to British	.48	.81	.62	

This indicates agreement among these variables except in the case of the comparison between respondent's generation and language spoken at home. The low coefficient in this comparison is mostly a function of the French group which has high assimilation on the generation variable

Table 4.6 Marriage into British origins, by ethnic group.

Ethnicity	Mar. to British[1] (1)	No mar. to British[2] (2)	Total (3)	N (4)
British	100.0	0.0	100.0	225
German	27.5	72.5	100.0	102
French	22.2	77.8	100.0	77
Irish	41.5	58.5	100.0	63
Other W.E.	20.5	79.5	100.0	117
Ukrainian	14.9	85.1	100.0	103
Other E.E.	15.5	84.5	100.0	58
Other	15.6	84.4	100.0	56
Total	44.8	55.2	100.0	
N	353	448		801

1) Respondent married into British origin or was originally British.

2) No marriage into British origin.

Note: The sample size is reduced from 1045 due to missing data on one or more of the variables.

but low assimilation on the language variable. By simply taking the average ranking of each ethnic group on the first category (most assimilated) of Tables 4.3 to 4.6, one obtains the following high to low ordering on assimilation: Irish, British, French, Other Western European, German, Other, Other Eastern European and Ukrainian.

4.4 Fertility effect of assimilation factors considered separately

The purpose of this section, as of Section 3.5 of the previous chapter, is twofold: to observe how the assimilation variables affect the fertility of the various ethnic groups, and to note changes that occur in the ethnic fertility differentials when additive adjustments are made for the effects of each assimilation variable. The analysis of variance results are presented in appendix Tables B.8 to B.14. As previously, only current family size (net age and marital status) is used as the dependent variable. The following section extends the analysis to expected family size and introduces various assimilation variables simultaneously into the model.

The correlation coefficients among assimilation variables are presented in Table 4.7. As could be expected, these coefficients are all positive. There are two cases of high correlations between essentially similar variables. The variables involved are the two language assimilation measures and the two homogamy measures. Given this multicolinearity, it is meaningless to control for one variable while looking at the effects of the other. These variables will thus not be simultaneously introduced into a MCA or regression model. The associations (Eta) of the assimilation variables with current family size are weak (Table 4.7). Only language spoken at home and marriage into

Table 4.7 Association (Eta) between selected assimilation variables and current family size (net age and marital status) and correlation coefficients among assimilation variables.

Independent variables	Eta*	CORRELATIONS							
		1	2	3	4	5	6	7	8
1 R's ethnicity	.12	xxx							
2 R's generation	.05	xxx	1.0						
3 H's generation	.08	xxx	.54	1.0					
4 Converse in eth.	.09	xxx	.20	.21	1.0				
5 Lang. spoken	.13	xxx	.27	.28	.94	1.0			
6 Parent's homo.	.00	xxx	.27	.23	.34	.35	1.0		
7 Two gen. homo.	.04	xxx	.36	.33	.40	.43	.77	1.0	
8 Mar. to Brit.	.12	xxx	.15	.20	.46	.45	.16	.21	1.0

4 Converse in eth.: ability to converse in ethnic language.
5 Lang. spoken: language spoken at home.
6 Parent's homo.: homogamy of respondent's parents.
7 Two gen. homo.: homogamy over two generations.
8 Mar. to Brit.: Marriage into British origin by respondent.

* Eta is the square root of the ratio of the sum of squares based on the unadjusted deviation for a predictor to total sum of squares. It is the correlation ratio and indicates the ability of the predictor, using categories given, to explain variation in the dependent variable.

xxx Correlation coefficients are not calculated for nominal variables.

British origins show associations with fertility that are equal to or stronger than the association between ethnicity and fertility. The association of homogamy with fertility is particularly weak but we will soon note that this summary measure disguises interesting interaction effects.

Tables 4.8 and 4.9 present the crosstabulations by, and MCA adjustments for, generation of Canadian residence of respondent and of husband. It is seen that the marginal differences are small with ranges of 0.20 and 0.31 children respectively. The variance explained by respondent's generation is not statistically significant while that explained by husband's generation attains significance at the .05 level (Tables B.8 and B.9). After removing the variance due to generation, that due to ethnicity continues to be significant at least at the .10 level. Both measures of length of residence are consistent with other North American results in the last 30 years: native born have higher fertility than foreign born. On respondent's generation we also note a slightly lower fertility of third generation over second generation. This pattern repeats itself within the ethnic groups, except that the Ukrainians, Other Eastern Europeans and Other have highest fertility in the third generation while Other Western European have highest fertility in the first generation. For all groups taken together there is a direct relation between husband's generation and fertility. Within ethnicities, two exceptions to this pattern are obvious: the highest fertility occurs in the second generation for Germans and in the first generation for Others.(2) The deviations of ethnic fertilities from the grand mean are only subjected to minor changes when additive adjustments are made for the effect of genera-

Table 4.8 Current family size (net age and marital status) by ethnicity and generation of Canadian residence of respondent. Unadjusted and adjusted deviations by ethnicity.

Ethnicity	GENERATION OF CANADIAN RESIDENCE			DEVIATIONS FROM GRAND MEAN	
	Third[1]	Second[2]	First[3]	Unadjusted	Adjusted
	(1)	(2)	(3)	(4)	(5)
British	-.23	-.10	-.42	-.19	-.19
German	-.06	.15	-.11	.06	.05
French	.32	.56	xxx	.39	.38
Irish	.08	.12	xxx	.10	.10
Other W.E.	-.06	.04	.10	.05	.05
Ukrainian	.01	-.11	xxx	-.02	-.04
Other E.E.	.26	.06	-.53	.01	.01
Other	.10	-.02	-.01	.06	.11
Total	-.02	.04	-.16	.00	.00
N	477	374	159	1010	1010

xxx Category contains fewer than 10 cases.

1) Third generation or more: native born of native parentage.

2) Second genration: born of foreign or mixed parentage or immigrated to Canada before age 12.

3) First generation: foreign born and immigrated to Canada at age 12 or more.

Note: The sample size is reduced from 1045 due to missing data on one or more of the variables.

Table 4.9 Current family size (net age and marital status) by ethnicity and generation of Canadian residence of respondent's husband. Unadjusted and adjusted deviations by ethnicity.

Ethnicity	GENERATION OF CANADIAN RESIDENCE			DEVIATIONS FROM GRAND MEAN	
	Third[1]	Second[2]	First[3]	Unadjusted	Adjusted
	(1)	(2)	(3)	(4)	(5)
British	-.06	-.11	-.44	-.21	-.23
German	-.04	.45	.00	.10	.12
French	.62	.61	xxx	.43	.39
Irish	.54	.03	xxx	.18	.15
Other W.E.	.19	.16	.15	.09	.14
Ukrainian	.23	-.10	xxx	-.05	-.08
Other E.E.	.57	-.20	-.87	-.14	-.13
Other	-.04	-.09	.18	-.04	.02
Total	.18	.07	-.13	.00	.00
N	342	323	164	829	829

xxx Category contains fewer than 10 cases.

1) Third generation or more: native born of native parentage.

2) Second genration: born of foreign or mixed parentage or immigrated to Canada before age 12.

3) First generation: foreign born and immigrated to Canada at age 12 or more.

Note: The sample size is reduced from 1045 due to missing data on one or more of the variables.

tion. Four of the 16 adjustments involve changes of 0.05 or more children. The ranges only change from 0.58 to 0.57 children for respondent's generation and from 0.64 to 0.62 children for husband's generation. As generally occurred in Chapter 3, it is the British and French who deviate most from the grand mean both before and after adjustments. We might thus conclude from these two tables that generation only has a slight influence on fertility and that this influence tends to be largely similar in the various ethnic groups.

Tables 4.10 and 4.11 present two measures of language assimilation. The first concentrates on language spoken at home. Since the overwhelming majority use the English language, an additional separation is made between those who can and those who cannot speak their corresponding ethnic language. The second table concentrates solely on ability to converse in the ethnic language. As with respondent's generation (Table 4.8), language spoken at home shows a curvilinear relation between assimilation and fertility. That is, highest fertility occurs in the group that can still speak the ethnic language but that does not use this language "at home now". This pattern holds in every ethnic group where there is a sufficient distribution of respondents to permit the comparison. Table 4.11 indicates that those who can speak their ethnic language have higher fertility than those who cannot speak this language; once again the pattern is uniform across ethnic groups. The ranges in the marginals for language spoken at home and ability to speak the ethnic language are of 0.62 and 0.30 children respectively. Though these differences are samll, the former is the largest encountered in this chapter. The variance in fertility explained by language assimilation is significant at the .01 level

Table 4.10 Current family size (net age and marital status) by ethnicity and language spoken at home. Unadjusted and adjusted deviations by ethnicity.

Ethnicity	LANGUAGE SPOKEN AT HOME: ENGLISH SPOKEN AT HOME: Engl.-sp. or cannot speak eth. lang.[1]	LANGUAGE SPOKEN AT HOME: ENGLISH SPOKEN AT HOME: Can speak[2] eth. lang.	LANGUAGE SPOKEN AT HOME: ETHNIC LANGUAGE SPOKEN[3] AT HOME	DEVIATIONS FROM GRAND MEAN: Unadjusted	DEVIATIONS FROM GRAND MEAN: Adjusted
	(1)	(2)	(3)	(4)	(5)
British	-.22	xxx	xxx	-.19	-.11
German	-.01	.17	-.53	.06	.03
French	.22	.60	xxx	.39	.29
Irish	.06	xxx	xxx	.11	.18
Other W.E.	-.07	.21	xxx	.06	.06
Ukrainian	-.04	-.02	xxx	-.02	-.16
Other E.E.	-.34	.38	xxx	-.05	-.08
Other	-.19	.80	-.34	.07	.11
Total	-.12	.27	-.35	.00	.00
N	670	285	57	1012	1012

xxx Category contains fewer than 10 cases.

1) English is spoken at home and respondent cannot speak language of either of her parent's ethnicities (or both parents are of "English-speaking" ethnicities).
2) English is spoken at home and respondent can speak language of at least one of her parent's ethnicities (other than "English-speaking" ethnicities).
3) Language spoken at home is that corresponding to the ethnicity (other than "English-speaking" ethnicity) of one of respondent's parents.

Note: The sample size is reduced from 1045 due to missing data on one or more of the variables.

Table 4.11 Current family size (net age and marital status) by ethnicity and ability to converse in ethnic language. Unadjusted and adjusted deviations by ethnicity.

Ethnicity	ABILITY TO CONVERSE: Engl.-sp. or cannot speak eth. lang.[1] (1)	ABILITY TO CONVERSE: Can speak eth. lang.[2] (2)	DEVIATIONS FROM GRAND MEAN: Unadjusted (3)	DEVIATIONS FROM GRAND MEAN: Adjusted (4)
British	-.22	xxx	-.19	-.12
German	-.01	.09	.06	.04
French	.22	.45	.39	.31
Irish	.06	xxx	.11	.18
Other W.E.	-.08	.22	.05	.04
Ukrainian	-.04	-.04	-.02	-.11
Other E.E.	-.29	.20	-.03	-.07
Other	-.19	.30	.07	.03
Total	-.12	.18	.00	.00
N	673	342	1015	1015

xxx Category contains fewer than 10 cases.

1) Respondent cannot speak language of either of her parent's ethnicities (or both parents are of "English-speaking" ethnicities).

2) Respondent can speak language of at least one of her parent's ethnicities (for ethnicities other than "English-speaking").

Note: The sample size is reduced from 1045 due to missing data on ethnicity.

(Tables B.10 and B.11). After removing the variance due to language assimilation, that due to ethnicity loses statistical significance.(3) Turning to the unadjusted and adjusted deviations from the grand mean, we notice in each table that four relatively large adjustments are made when language assimilation is taken into consideration: there are decreases in the negative differential associated with the British group and in the positive differential associated with the French group; on the other hand there are increases in the positive differential associated with the Irish group and in the negative differential associated with the Ukrainian group. Stated more simply, if all groups were equally assimilated (or equally unassimilated) and assuming an additive model, there would be less difference between English and French but the Irish and Ukrainians would stand out as deviating more strongly from the overall mean. We might therefore conclude that language assimilation has a similar type of influence across ethnic groups but that, given the different levels of assimilation, it has a relatively important impact on the ethnic fertility differentials.

The results on homogamy (or endogamy versus exogamy) are presented in Tables 4.12 and 4.13. It is of particular relevance here that the marginals show very little differentiation but that homogamy turns out to be significant when the various ethnic groups are considered separately. This shows up in the analysis of variance tables (Tables B.12 and B.13) where the main effect of homogamy is insignificant but its interaction effect with ethnicity is significant at the .05 or .01 levels. These are the only significant interaction effects encountered in this chapter. Interaction might have been expected according to the "particularized ideology" hypothesis: groups that are

Table 4.12 Current family size (net age and marital status) by ethnicity and homogamy of respondent's parents. Unadjusted and adjusted deviations by ethnicity.

Ethnicity	HOMOGAMY		DEVIATIONS FROM GRAND MEAN	
	Ethnic intermar.	No eth. intermar.	Unadjusted	Adjusted*
	(1)	(2)	(3)	(4)
British	-.23	-.19	-.19	
German	.11	.00	.06	
French	.22	.46	.38	
Irish	.01	.18	.08	
Other W.E.	-.13	.16	.06	
Ukrainian	.77	-.20	-.03	
Other E.E.	.46	-.38	-.00	
Other	-.35	.18	.07	
Total	-.02	-.02	.00	
N	399	588	987	

* The adjusted means are not presented because interaction is significant at the .05 level (see Table B.12).

Note: The sample size is reduced from 1045 due to missing data on one or more of the variables.

Table 4.13 Current family size (net age and marital status) by ethnicity and homogamy over two generations. Unadjusted and adjusted deviations by ethnicity.

Ethnicity	HOMOGAMY			DEVIATIONS FROM GRAND MEAN	
	All three eth. diff.[1]	Two eth. same[2]	All three eth. same[3]	Unadjusted	Adjusted*
	(1)	(2)	(3)	(4)	(5)
British	-.19	-.03	-.17	-.19	
German	.57	-.23	.26	.01	
French	.52	-.05	1.54	.45	
Irish	-.04	.53	xxx	.16	
Other W.E.	-.13	.08	.83	.10	
Ukrainian	.94	.06	-.33	-.08	
Other E.E.	.52	.08	-.58	-.05	
Other	xxx	-.12	.34	-.01	
Total	.09	.02	.14	.00	
N	222	354	225	801	

xxx Category contains fewer than 10 cases.

* The adjusted means are not presented because interraction is significant at the .01 level (see Table B.13).

1) All three ethnicities (respondent, respondent's husband, respondent's mother) are different.
2) Two of the ethnicities are the same.
3) All three ethnicities are the same.

Note: The sample size is reduced from 1045 due to missing data on one or more of the variables.

extreme on the dimension of relevance (that is, less assimilated) should exhibit extreme forms of the behaviour that is typical of their group. Since the behaviour that is typical of a group will by definition vary with the group involved, we should expect an interaction effect. When the respondent's parents were of the same ethnicity, there is lower fertility if the respondent is German, Ukrainian or Other Eastern European but higher fertility if she belongs to any of the five other groups. Similarly, comparing the situation when all three ethnicities (respondent, mother, husband) are the same to that when all three are different, the former shows lower fertility for German, Ukrainian and Other Eastern European but higher fertility for French and Other Western European respondents.

The final variable considers marriage into British origins (Table 4.14). Since the British group has lower fertility, one would expect that marriage to British would have a depressing effect on fertility. This decrease in fertility is found to be the case both in the total of the eight groups and in each group with the exception of the Irish. The variance in completed fertility explained by marriage into British origins is found to be significant at the .01 level (Table B.14). The adjustments in the deviations from the grand mean for this variable are the largest that have been encountered thus far in the thesis. The British fertility undergoes an upward adjustment while all other groups are adjusted downward. In sum, marriage to British has a significant effect on fertility, this influence tends to be uniform among ethnic groups and to introduce sizeable adjustments in the ethnic deviations.

Table 4.14 Current family size (net age and marital status) by ethnicity and marriage into British origins. Unadjusted and adjusted deviations by ethnicity.

Ethnicity	MARRIAGE INTO BRITISH		DEVIATIONS FROM GRAND MEAN	
	Mar. to British[1]	No mar. to British[2]	Unadjusted	Adjusted
	(1)	(2)	(3)	(4)
British	-.12	xxx	-.19	.04
German	-.35	.25	.01	-.06
French	.04	.66	.45	.36
Irish	.36	.14	.16	.14
Other W.E.	-.16	.26	.10	.00
Ukrainian	-.23	.03	-.08	-.20
Other E.E.	-.62	.14	-.05	-.17
Other	xxx	.16	-.01	-.13
Total	-.12	.23	.00	.00
N	353	448	801	801

xxx Category contains fewer than 10 cases.

1) Respondent married into British origin or was originally British.

2) No marriage into British origin.

Note: The sample size is reduced from 1045 due to missing data on one or more of the variables.

It is possible to analyze the above tables further in order to test the extent to which they support the "particularized ideology" hypothesis. To repeat, this hypothesis would essentially claim that individuals who show stronger identification with a given group should exhibit extreme forms of the behaviour which is typical of the group. In order to operationalize this proposition, the behaviour which is typical of the group is taken to be the unadjusted deviation from the grand mean as presented in the second last column of the above tables. Individuals who show a stronger identification with their groups will be taken to be those who fall into the less assimilated category. When this category has insufficient responses for a given variable, the second to last category is used instead. Specifically, in Tables 4.8 and 4.9 we use the second generation, in Table 4.11 the ability to converse in the ethnic language, in Tables 4.12 and 4.13 those with no intermarriage, and in Table 4.14 those with no marriage into British origins. The grand means is subtracted from the class means on these categories in order to restrict the comparisons to deviations from the grand mean.(4) Comparisons can now be made within each ethnicity for these six tables between the class mean for the entire ethnic group and the class mean for the less assimilated members of that ethnic group (both measured as deviations from the grand mean for the entire table). The less assimilated are included in the entire group because we want a measure of that which is typical of the group as a whole. The hypothesis is operationalized as follows: if the class mean for the entire ethnic group is positive, then we expect the class mean for the less assimilated members of that ethnic group to be a higher positive number; conversely, if the ethnic group mean is negative, the mean for

the less assimilated part of that group should show a stronger negative deviation. That is, we expect the less assimilated to be more extreme in the deviation which is typical of the entire group. An arbitrary cutting point of 0.05 children is used with differences smaller than this amount taken to show no difference. Of the 44 comparisons that can be made, the hypothesis is supported in 30 comparisons while eight comparisons show differences in the direction opposite to that predicted and six comparisons show no differences. Over the six tables, the hypothesis finds its strongest support in the French and German groups. By variable, the hypothesis is supported most strongly in the homogamy tables. Looking at Table 4.12 and subtracting the appropriate grand mean, it can be seen that there is essentially no difference for British and German. However, the positive differentials associated with the following groups are increased when considering only those respondents whose parents did not intermarry: French, Irish, Other Western European and Other. At the same time there is an increase in the negative deviation associated with the Ukrainian and Other Eastern European groups. Except in the Other group, we find essentially the same results by comparing the situations when all three ethnicities are the same (father, mother, husband) to the corresponding class means (Table 4.13). In this case, the British and German groups also follow the expected pattern: the unassimilated members have a larger negative deviation in the former and a larger positive deviation in the latter. The author would thus conclude that there is considerable support for the "particularized ideology" hypothesis.

Before turning to the next section, it is worth summarizing the changes made in ethnic fertilities through adjustments for ratings on the assimilation factors considered separately. This is done through the last two columns of Tables 4.8 to 4.11 and Table 4.14. On these five variables, there are 16 cases (40%) of adjustments that are in the order of more than 0.05 children. Six of these adjustments involve a decrease of a positive or negative differential, seven involve an increase of a positive or negative differential, and three involve a change of positive to negative or negative to positive over a range of more than 0.05 children. The adjustments are thus more frequent than for the background factors (Section 3.5) where only four such adjustments were made on six variables (8% of cases). However, as noted above, adjustments do not only involve reductions of differentials. Thus, while adjustments for the separate effects of assimilation variables are sizeable, the range of differences among the eight ethnic groups is not substantially changed. Or, stated differently, equal levels of assimilation would affect the rank orderings of ethnicities with respect to fertility but would not eliminate ethnic fertility differences.

4.5 Fertility effect of assimilation variables acting together

Two considerations are important when the MCA is continued with several assimilation variables considered simultaneously. Since the variables "ability to converse in ethnic language" and "language spoken at home" were highly correlated, only the latter, which has a higher association with fertility, is retained in the model (see Table 4.7 for correlations). In addition, it was found that the homogamy variables interact significantly with ethnicity (Tables B.12 and B.13)

so that it is not legitimate to retain them in an additive model. Instead, the analysis is made at various levels of the variable "homogamy over two generations". The model thus contains four independent variables besides respondent's ethnicity. These variables are: generation of Canadian residence of respondent, generation of Canadian residence of husband, language spoken at home, and marriage into British origins. The analysis is done separately on current and expected family size. The following statistics are presented in the tables: the unadjusted deviations from the grand mean of current family size, and expected family size (net age and marital status), by ethnic groups as well as these deviations adjusted for the effects of the four assimilation variables under consideration; the beta weights for each variable in the model as well as the multiple correlation coefficents for all variables taken together. These results are presented at each of the three levels of homogamy as well as at all levels taken together. The beta weights measure a variable's usefulness after the other variables in the model have been taken into account.

In the series on current family size (Table 4.15), it is seen that the beta weights for ethnicity are higher when the analysis is done at a given level of homogamy than when it is done at all levels taken together. It is also noticeable that the usefulness of ethnicity increases with the increase in homogamy (or decrease in intermarriage). This higher explanatory power is also reflected in the multiple correlation coefficients which generally increase with homogamy and are also larger within levels of homogamy than at all levels taken together. These are important findings in the support of ethnicity as a relevant factor in the understanding of fertility differ-

Table 4.15 Unadjusted and adjusted deviations in mean current family size (net age and marital status) by ethnicity within different levels of homogamy over two generations. Beta weights for assimilation variables and multiple correlation coefficients for all variables together.

	ALL THREE ETH. DIFF.[1]			TWO ETH. SAME[2]			ALL THREE ETH. SAME[3]			ALL HOMOGAMY LEVELS		
		Deviations			Deviations			Deviations			Deviations	
Ethnicity	N	Unadj.	Adj.	N	Unadj.	Adj.	N	Unadj.	Adj.	N	Unadj.	Adj.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
British	69	-.28	-.07	98	-.02	.25	52	-.34	.14	219	-.18	.16
German	17	.65	.51	49	-.28	-.41	33	.09	.01	99	.01	-.11
French	25	.37	.18	31	-.06	-.33	20	1.36	.84	76	.42	.16
Irish	31	-.14	-.21	29	.52	.78	3	-.34	-.38	63	.15	.21
Other W.E.	39	-.24	-.21	52	.07	.14	25	.66	.75	116	.09	.03
Ukrainian	10	.85	.58	43	.06	-.36	46	-.48	-1.00	99	-.07	-.43
Other E.E.	15	.39	.22	25	-.04	-.26	13	-.58	-.60	53	-.06	-.22
Other	9	-.49	-.60	17	-.14	-.20	27	.26	.53	53	.01	.01
Total	215	.00	.00	344	.00	.00	219	.00	.00	778	.00	.00
BETA												
Ethnicity		.21			.26			.36			.14	
R's generation		.03			.16			.11			.04	
H's generation		.16			.11			.05			.08	
Lang. sp. at home		.04			.20			.24			.13	
Mar. to Brit.		.18			.07			.18			.16	
MULTIPLE R		.26			.23			.35			.17	

1) All three ethnicities (respondent, respondent's husband, respondent's mother) are different.
2) Two of the ethnicities are the same.
3) All three ethnicities are the same.

Notes: 1) When deviations from the grand mean are adjusted they are adjusted for respondent's generation, husband's generation, language spoken at home, and marriage into British origins.
2) The sample size is reduced from 1045 due to missing data on one or more of the variables.

ences. It is seen that the effect of ethnicity is somewhat suppressed when on does not separate out influences of intermarriage. In addition, ethnicity increases in strenght as an explanatory factor as intermarriage with other ethnicities is reduced. When the analysis is limited to the 28 percent of the sample in which neither the respondent nor her mother intermarried, the association (Eta) of ethnicity with current family size rises to 0.32. This is the highest association recorded for variables considered in this thesis (see Tables 3.1, 4.7 and 5.1). With a larger sample size it would have been interesting to make a more detailed analysis of this "ethnicity pure" subgroup. If the effect of ethnicity is already considerable when there is a high level of intermarriage, a subsample that excludes ethnic mixtures would probably be even less affected by adjustments for other relevant factors.

Continuing in the study of the beta weights given in Table 4.15, it is seen that with one exception the weight attributed to ethnicity is higher than those attributed to the other variables under consideration. The importance of ethnicity is also evidenced when the analysis is repeated after dropping this variable from the model. It is seen that the explained sum of squares is increased by 41 percent when ethnicity is added to the model containing the four other variables under consideration.(5)

The analysis of the unadjusted and adjusted deviations is particularly complex. It will be recalled that in the adjustments for background factors acting together (Section 3.5, Table 3.9), only 28 percent of adjustments (when N is 10 or more) were in the order of more

than 0.10 children (10 cases out of 36 comparisons). In the present case the equivalent figure is 67 percent (20 cases out of 30 comparisons). Of these 20 cases, there are eight adjustments that involve increased deviations, seven that involve reduced deviations and five involving changes in signs. If there is any emergent pattern, it is the following: the differential current fertility associated with the British group changes from negative to positive when adjustments are made for assimilation variables; the positive differential associated with the French group is decreased; and the negative differentials associated with the Ukrainian and Other Eastern European groups are increased. In other words, if the ethnic groups under consideration were equally assimilated (or unassimilated), the British would have higher fertility while the French, Ukrainian and Other Eastern European would have lower fertility than they have now. Thus the adjustments for assimilation factors are considerable and tend to be different in the various ethnic groups. On the other hand, it can be seen that these adjustments do not greatly affect the rank ordering of ethnicities except the upward adjustment of the British group.

Equivalent results for expected family size are presented in Table 4.16. We have a similar situation of ethnicity being more useful within levels of homogamy than at all levels taken together. The pattern of increasing usefulness of ethnicity along levels of homogamy is less clear but ethnicity is again most useful when there is no intermarriage. On the entire data set, the addition of ethnicity to the model increases the explained sum of squares by a factor of 60 percent over that explained when only the four other variables are included in the analysis.(6) There are fewer changes in expected

Table 4.16 Unadjusted and adjusted deviations in mean expected family size (net age and marital status) by ethnicity within different levels of homogamy over two generations. Beta weights for assimilation variables and multiple correlation coefficients for all variables together.

Ethnicity	ALL THREE ETH. DIFF.[1] N	Deviations Unadj.	Adj.	TWO ETH. SAME[2] N	Deviations Unadj.	Adj.	ALL THREE ETH. SAME[3] N	Deviations Unadj.	Adj.	ALL HOMOGAMY LEVELS N	Deviations Unadj.	Adj.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
British	63	-.24	-.17	90	-.13	.13	50	-.36	.17	203	-.23	.08
German	17	.34	.26	48	-.14	-.22	32	.02	-.04	97	.01	-.08
French	20	.63	.48	31	.66	.36	20	1.21	.69	71	.79	.49
Irish	31	.26	.23	28	.21	.42	3	.12	.03	62	.18	.29
Other W.E.	37	-.48	-.36	48	-.16	-.10	25	.89	.91	110	-.03	-.08
Ukrainian	10	.61	.46	41	.05	-.29	43	-.54	-1.03	94	-.11	-.42
Other E.E.	15	.38	.30	25	.10	-.07	11	-.73	-.64	51	-.04	-.10
Other	9	-.65	-.65	17	-.27	-.36	27	.26	.38	53	-.06	-.11
Total	202	.00	.00	328	.00	.00	211	.00	.00	741	.00	.00
BETA												
Ethnicity		.21			.16			.37			.15	
R's generation		.10			.17			.19			.12	
H's generation		.13			.08			.05			.03	
Lang. sp. at home		.05			.16			.13			.14	
Mar. to brit.		.05			.07			.21			.09	
MULTIPLE R		.19			.19			.31			.19	

1) All three ethnicities (respondent, respondent's husband, respondent's mother) are different.
2) Two of the ethnicities are the same.
3) All three ethnicities are the same.

Notes: 1) When deviations from the grand mean are adjusted they are adjusted for respondent's generation, husband's generation, language spoken at home, and marriage into British origins.
2) The sample size is reduced from 1045 due to missing data on one or more of the variables.

fertility from the unadjusted to the adjusted deviations from the grand means: 50 percent of changes involve a shift of more than 0.10 children (15 cases out of 30 comparisons). The British group is again characterized by a switch from negative to positive deviation as one adjusts for assimilation factors. There is also the similar situation of a reduction in the positive deviation associated with the French group and an increase in the negative deviation associated with the Ukrainian group. In addition, there is an increase in the positive deviation associated with the Irish group. In spite of these diverse and relatively strong adjustments, the only change in the rank ordering of ethnicities involving two or more places (on the last set of columns) is again the upward adjustment of the British group (from eight rank to third rank).

Since the regression analysis is done separately on each ethnic group, it is not necessary to be concerned about the interaction between ethnicity and homogamy. Thus the four variables used above plus the variable "homogamy over two generations" have been introduced into the standard multiple regression model. The results for current and expected family size (Tables 4.17 and 4.18) show reasonably high multiple correlation coefficients, particularly for the Other Eastern European group. Only nine of the 90 regression coefficients are at least twice their standard errors (i.e. significantly different from zero at the .05 level). The overwhelming conclusion from this regression analysis on assimilation and fertility for the various ethnic groups is that of a considerable amount of interaction between ethnicity and the assimilation variables in their effect on fertility. We have had occasion to refer to this before.

Table 4.17 Regression coefficients and standard errors by ethnicity using respondent's generation, husband's generation, language spoken at home, homogamy over two generations, and marriage into British origins as independent variables and current family size (net age and marital status) as dependent variable.

		COEFFICIENTS AND (SIGMAS)					
Ethnicity	N	R's gener.	H's gener.	Lang. at home	Homogamy	Mar. to Brit.	Multiple R
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
British	219	.11 (.14)	.13 (.14)	.29 (1.09)	-.08 (.12)	xxx	.11
German	99	-.16 (.31)	-.14 (.29)	.24 (.30)	.31 (.28)	-.56 (.36)	.23
French	76	-.01 (.46)	.42 (.32)	.34 (.50)	-.57 (.39)	-.70 (.54)	.29
Irish	63	.10 (.27)	.36 (.25)	-1.36 (1.15)	-.47 (.30)	.26 (.34)	.31
Other W.E.	116	.17 (.30)	.18 (.27)	.11 (.32)	-.65 (.28)*	-.28 (.41)	.25
Ukrainian	99	.35 (.29)	.04 (.27)	-.49 (.33)	.79 (.23)*	-.75 (.43)	.36
Other E.E.	53	.06 (.33)	.71 (.31)	-.57 (.30)	.28 (.33)	-.97 (.51)	.54
Other	53	.59 (.57)	-.32 (.56)	.23 (.36)	-.70 (.43)	-.73 (.73)	.30
Total	778	.08 (.09)	.18 (.09)*	-.04 (.11)	-.06 (.08)	-.40 (.12)*	.16

* Coefficient is twice its standard error.

xxx The variable "marriage into British origins" is here dropped from the model because it is a constant.

Notes: 1) Positive coefficients indicate a direct association between assimilation (as measured by a given variable) and fertility.

2) The sample size is reduced from 1045 due to missing data on one or more of the variables.

Table 4.18 Regression coefficients and standard errors by ethnicity using respondent's generation, husband's generation, language spoken at home, homogamy over two generations, and marriage into British origins as independent variables and expected family size (net age and marital status) as dependent variable.

		COEFFICIENTS AND (SIGMAS)					
Ethnicity	N	R's gener.	H's gener.	Lang. at home	Homogamy	Mar. to Brit.	Multiple R
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
British	203	.07 (.14)	.14 (.15)	.38 (1.11)	-.10 (.13)	xxx	.10
German	97	.17 (.31)	-.08 (.30)	.17 (.30)	-.07 (.28)	-.25 (.36)	.12
French	71	.65 (.53)	-.24 (.38)	-.14 (.58)	-.36 (.46)	.30 (.64)	.23
Irish	62	.13 (.38)	.30 (.37)	-.04 (1.64)	-.19 (.43)	.20 (.49)	.15
Other W.E.	110	.56 (.30)	-.18 (.27)	-.14 (.31)	-.82 (.27)*	-.23 (.42)	.38
Ukrainian	94	.44 (.30)	-.18 (.27)	-.54 (.34)	.71 (.24)*	-.37 (.45)	.32
Other E.E.	51	.62 (.32)	.58 (.31)	-.55 (.30)	-.00 (.32)	-1.10 (.50)*	.61
Other	53	.44 (.57)	-.05 (.56)	.08 (.36)	-.74 (.44)	-1.30 (.73)	.37
Total	741	.29 (.10)*	.01 (.09)	-.22 (.12)	-.10 (.09)	-.26 (.13)*	.18

* Coefficient is twice its standard error.

xxx The variable "marriage into British origins" is here dropped from the model because it is a constant.

Notes: 1) Positive coefficients indicate a direct association between assimilation (as measured by a given variable) and fertility.

2) The sample size is reduced from 1045 due to missing data on one or more of the variables.

In the regression analysis this interaction is evidenced by the high amount of variation among ethnic groups in the importance of the various assimilation variables to fertility and in the direction of their influence on fertility. For several reasons, it is necessary to be cautious with these regression results: the measurement is at the ordinal level, there are a small number of categories per variable (usually three sometimes two), there are unexplained differences between current and expected fertility, and the assimilation variables may themselves interact in determining fertility. However, given the relatively high correlation coefficients, we are probably justified in concluding that assimilation is important to the consideration of the effect of ethnicity on fertility but that its influence tends to be different for the various ethnic groups. For instance, the five assimilation variables only explain one percent of the variance in the fertility of the British group but 29 percent of the current fertility and 37 percent of the expected fertility of the Other Eastern European group. As another example, assimilation through intermarriage has a significant negative influence on the fertility of the Other Western Europeans but a significant positive influence on that of the Ukrainian group.

The evidence presented in this chapter is rather complex and difficult to summarize. As had been indicated by earlier studies, we have documented a relatively high amount of assimilation among respondents in the GAFS sample. There is naturally variability by ethnic group in the extent of assimilation. Except for the British and French, the relative assimilation of the various groups was found to be in reasonable agreement with the piecemeal evidence that could be

located from other sources. In general, the association between assimilation and fertility was lower than that between background factors and fertility. Though this marginal influence of assimilation was not particularly large, equalizing the groups with respect to the effect of assimilation introduced sizeable adjustments in the ethnic fertility deviations. These adjustments were larger than those for background factors in the previous chapter. Thus differences in assimilation have more impact than differences in background factors on ethnic fertility differentials. On the other hand, some of the adjustments for assimilation factors introduced increases in the fertility deviations of certain ethnic groups. For instance, the Ukrainian and Other Eastern European groups showed stronger negative deviations after adjusting for the combined effect of assimilation variables. Thus adjustments did not eliminate ethnic fertility differences.

It is suggested that the particularized ideology approach presents a potential framework within which to understand many of the diverse findings that have been encountered in this chapter. This approach would hold that fertility is influenced by value orientations and norms that are internalized as participants in a group. If this hypothesis is valid, one would further expect that a stronger association with a given group would accentuate the fertility deviation that is typical of that group. By definition, that which is typical of a group will vary according to the groups involved. In other words some form of differential impact or interaction is expected. This was found to be the case in the above analysis. The crosstabulations often indicated variability among ethnic groups in the shape of the relation between assimilation and fertility. This variability was

evidence particularly in the homogamy variables which interacted significantly with ethnicity in their effect on fertility. When intermarriage was low, there was a strenghtening of the positive deviation associated with the French, Irish and Other Western European groups and a strenghtening of the negative deviation of the Ukrainian and Other Eastern European groups. The regression analysis tended to confirm that there were considerable differences (sign and size of coefficients) in the way the assimilation variables affected the fertility of the various ethnic groups.

CHAPTER 5

AN ECONOMIC MODEL AND THE EXPLANATION OF ETHNIC FERTILITY DIFFERENTIALS

> Social and cultural adjustments to actual conditions of living tend to induce widespread restriction of fertility when such restriction is recognized, or assumed, to be favourable to the achievement of accepted goals.
>
> (Lorimer, 1954: 248-249).

5.1 The economic model, its usefulness and shortcomings

As emphasized in the quotation presented above, there has long been a general notion that economic factors play a central role in fertility decisions and consequent fertility behaviour. Thus Lorimer (1954: 248) classified "adjustment to actual conditions of living" among the two conditions that can induce fertility reduction. Ryder (1959: 426) further generalizes: "to judge from the reports of informants, empahsis of analysts, and everyday conversation, economy is the paramount determinant of fertility decisions". Based on this general hypothesis of the relevance of economic factors, economists and demographers have developed what could be called an "economic model" for the explanation of fertility variation. Stated simply, this model would essentially claim that fertility decisions are arrived at through a consideration of relative preferences for children (as compared to other consumer goods), direct and indirect (opportunity) costs of children, and the couple's level of living. The objective of this chapter is to determine the extent to which the model is supported by the data under consideration and to see if ethnic fertility differentials can be understood through ethnic differences in the variables of this economic model.

Before speaking more specifically about the model and its operationalization, it is well to bring it into a larger historical and theoretical context. During the English debates on the Poor Laws, Malthus called attention to the importance of the standard of living to rates of population growth. He argued that the more social benefits given to the poor, the earlier people would marry and the more children they would bear. The general notion is thus of a direct relationship between standard of living and fertility.

The transition model, which summarizes the historical experience of some Western countries, suggests an opposite conclusion. This model would propose that the process of socioeconomic development or modernization is accompanied by a decrease first of mortality, then of fertility. Thus fertility decreases as standards of living increase. Furthermore, since modernization and contraceptive technology generally spread from the upper to the lower classes of society, the transition model has been used as an explanation for the often observed inverse relation between status and fertility. This latter notion has been elaborated by Cho et al., (1970: 297) who suggest that there will be different patterns of differential fertility at different stages of the demographic transition. According to these authors, there would be a positive relation between fertility and socioeconomic status in a traditional population. During the transition period the relation would become inverse, and later u-shaped in the late transitional period. The post-transitional relationship between status and fertility would again be positive. Stated in this way, the opposition between the Malthusian and transitional perspectives is somewhat attenuated. The contrasting hypotheses would be limited to the transi-

tional period. In any case, both place a central emphasis on economic considerations.

Similar emphasis tends to emerge when questioning people about rationales for family size. In his Chicago sample, Rainwater (1965: 134) found that couples see trends in family size as a response to economic conditions. From the total pattern of rationales, Rainwater (idem, p. 150) abstracted what he called a central norm: "one shouldn't have more children than one can support, but one should have as many children as one can afford".(1)

Among the students of fertility, one finds an increasing number who tend to refer to the economic model, in some form or other, as a means by which to integrate some of the available information on fertility differentials. Thus, Cho et al. (1970: 297-299) focus on this type of model in attempting to summarize and explain differentials in the recent history of American fertility. In his recent book on The sociology of fertility, Hawthorn (1970) also introduces the economic model as a central point of reference. He concludes that a large number of social and economic factors can affect fertility intentions, "and they do so by altering the balance of resources, costs and tastes available to and perceived by the couple" (idem, p. 110). Namboodiri (1972a) developed a rather elaborate economic model, then (Namboodiri, 1972b) sought to determine the extent to which its 29 factors provide a potential explanation of previously observed fertility differentials. A similar emphasis is often taken in migration studies. One generally expects migration to have a negative effect on fertility because of the associated economic hardships (see for instance Long, 1970b

mentioned in Section 4.1). This explanation has also been used in the context of social mobility. As Westoff et al. (1961: 237) have stated it, "the socio-economic and psychological requirements for upward mobility are inconsistent with expenditures of time, energy, and money for children".

The economic model is brought into the present study for two reasons. First, given the model's popularity, one is tempted to determine whether or not it is useful in the explanation of ethnic fertility differentials. The hypothesis would be that the various ethnic groups have different fertilities because they have different distributions on the variables of the model. Bean and Wood (1974) have recently looked at ethnic differences in the framework of an economic model. They in fact found evidence of different patterns of relationships by ethnicity (Anglos, Blacks, Mexican American) between income and fertility. The second rationale takes its bases in Namboodiri and Pope's (1968) suggestion that the economic and normative approaches are complementary: "to the extent that family size is kept outside the utility framework of individuals in a population, social norms concerning family size exist in that population". The suggestion here would be that the model could be more applicable in certain groups (viz ethnic groups) than in others. That is, in some groups utility considerations may be foremost while in others normative considerations would be of primary importance. In some respects this latter perspective follows from authors who apply the economic model to select subsamples of a given population (see, for instance, Freedman, 1963 and Chaudhury, 1973 considered later).

In proceeding to focus more directly on the economic model per se, one should first establish that children are a value to parents. As Schultz (1973: S2) puts it, "Children are in important part of the standard of living of most families".(2) In his chapter on "Population growth theory and economic development", Leibenstein (1957: 159-165) suggests that motivations with respect to family size are, to a considerable extent, rational: "parents will want an extra child if the satisfactions to be derived from that child are greater than the 'costs' that are involved – where 'costs' are to be interpreted rather broadly" (idem, p. 159). Leibenstein elaborates three types of utilities that children can provide: a consumption good as a source of personal pleasure, a productive agent by which the family income may be increased, and a potential source of security. The costs would be twofold: direct costs in terms of current expenditures and indirect costs or opportunities forgone. Phillips et al. (1969) have provided a useful elaboration in which they suggest that it is important to set these considerations against the background of the economic environment, as indicated by the community of residence. Thus children may be a consumption good in any context but the would be more of a production asset and source of security in a rural-farm situation. On the other hand, both direct and indirect costs are probably higher in an urban situation.

Though Leibenstein developed the essential elements of the economic model, demographers generally take their point of reference from Becker's (1960) chapter, "An economic analysis of fertility". Becker proposes a straightforward application of the theory of demand for consumer durables to the demand for children. The model includes

five independent factors: tastes, quality of children, income, costs and supply of children. Tastes for children is taken to be a rather broad variable which would in turn be determined by religion, race, age and the like. One of Becker's major points is the clearcut distinction between the quality and quantity of children. Quality of children would be measured by the amount spent on them. He expects both the quality and quantity elasticity of children (with income) to be positive. Disagreeing with Malthus, Becker expects the quantity elasticity of children to be a small in comparison to the quality elasticity. However, he continues to argue that the quantity elasticity is expected to be positive. The costs of children are taken to include both direct outlays and the value of the parent's services, net any expected return in money or services. Becker also empahsizes that there are unknowns in the supply of children. That is, the couple cannot always have the number they want to have. Becker emphasizes this latter point when considering empirical applications. Couples may have more children than they desire because of inadequate knowledge of contraception. This is particularly problematic because differential knowledge of contraception is probably related to income. Thus Becker suggests that desired rather than actual fertility should be used in testing the model.

Much of the work that has been done on the model since Becker's article can be seen as a refinement of the variables that he emphasized. The "costs of children" have been more clearly separated into direct and indirect costs. Micer (1963) elaborates opportunity costs by including the wife's forgone wages. Becker (1965) extends this concept by suggesting that prices should always include both the

direct costs of goods and the time used to consume them. Easterlin (1969) thus concludes that changes in the wife's potential earnings influences fertility in two ways: it has a positive "income effect" but a negative "substitution effect" because there is an associated increase in the opportunity costs of children.

Since the wife's income can have this substitution effect, Micer (1963) argues for the use of husband's rather than family income. Easterlin (1969) suggests that potential income should be used instead of current income. Though potential income is a difficult concept to measure, it is theoretically more appropriate because couples are not necessarily basing their fertility decisions on current income but rather on an estimate of lifetime earnings.

Easterlin (1968, 1969) has worked on the notion of "taste" or "preference pattern". At given income levels, fertility is expected to vary inversely with the desired consumption level. Easterlin suggests that the factors lying behind the formation of tastes would include the following: parent's income, religion, nativity, farm-nonfarm origin, colour, place of residence, education, occupation, income and family building experience. Hawthorn (1970) adds female employment and social mobility to this list.

It now becomes evident that income can influence fertility either directly or through its effect on the preference field. Freedman (1963) suggested an interesting combination of these notions through the concept of "relative income". What counts is not income per se but income relative to that of others in one's age, occupational, educational and residence categories (idem, pp. 414-415).

Relative income can thus be seen as income controlling for selected taste-forming factors. Or, as Easterlin (1969: 147) states it, "the relative income hypothesis provides a crude embodiment of the view that fertility behaviour reflects a balancing of preferences against certain resource constraints". Looking at this interaction between income and tastes, Simon (1969: 341) concludes that the model can make no a priori predictions about the total effect of income on fertility. That is, since its effect through tastes could be in either direction, the direct positive effect on fertility could be nullified. Hawthorn (1970: 82) arrives at a similar conclusion that "independent of changing tastes, income is directly related to fertility; but tastes are rarely independent; and thus the observed relationships are likely to vary within narrow limits around the measure of no association". Namboodiri (1970: 238) agrees that negative as well as positive correlations between family income and preferred family size are consistent with the theory in its present form.

Subsequent analysts have also been troubled by the problem which Becker raised regarding differential contraceptive knowledge. Freedman (1963) resolved the issue by applying the model to a select subsample of "fecund planners" who had used or intended to use birth control and who had no unwanted pregnancies. Easterlin (1969: 136) suggested applying the theory of consumer choice to decisions regarding fertility control as well as to decisions on family size. Recognizing that coition is a good, the costs of fertility control (both direct and indirect) should then be balanced against the costs of an unwanted pregnancy.

Before turning to criticisms of the model and relevant findings, it is well to refer to a few authors who have provided systematic integrations of these notions. In a general theorical article, Spengler (1966) proposes that three sets of variables influence the choice of objects: the preference system, the price system, and income. The preference system would in turn be influenced by values and goals. As is evidenced from the above discussion, Easterlin's (1969) contributions are particularly noteworthy. In summary, Easterlin argues that income has a positive relation to fertility but that tastes, prices and fertility control practices have a negative relation. Namboodiri (1972a) has attempted an even more sophisticated model especially by emphasizing that fertility decisions are two-person decisions wherein the relative dominance of spouces should be considered. He also suggests that each parity should be considered separately in a series of sequential decisions.

Criticisms of the economic model come basically along two avenues: the argument that this type of thinking is not appropriate to childbearing, and the observations that many findings do not fit the model. While research findings will be taken up shortly, we will first concentrate on the issue of applicability. Blake's (1968) article, "Are babies consumer durables?", provides probably the best statement of the position against the economic framework. Since there are strong institutional pressures to have children, Blake argues that children cannot be viewed in the same manner as other utilities. In fact, social institutions are geared to prevent economic factors from inhibiting reproduction. In addition, there is no direct market control over the acquisition of children (no means test or credit rating)

and no opportunity to reshuffle matters once the "purchase" has been made. Blake joins Duesenberry (1960) in claiming that there are normative and practical constraints in arriving at given qualities of children; the standards of quality vary with social class, and the standard of living of children cannot be independent of that of the parents. In a subsequent article, Blake (1972) uses the notions of utilities and costs of children, but she maintains that these utilities and costs are largely beyond the individual's control. Namboodiri and Pope (1968: 3) propose similar considerations when they claim that "there are certain prospects that never enter the utility framework". As mentioned earlier, these authors suggest that utility considerations in childbearing may be relevant to some populations and not to others. Thus, in a sense, the argument coming through Blake and others can be put forth as an alternate hypothesis: if cost-benefit analysis does not apply to childbearing, then it is an indication of the power of the normative institutional control over fertility.(3)

Though, as Kantner (1970: 135) observes, it is difficult to make the assumption of a uniform distribution of economic rationality, "attempts at nonrational explanation generally border on the irrefutable" (Ryder, 1973a: 504). On the other hand, one might also argue that, at least in their extreme form, utility explanations become equally irrefutable. Thus the idea that by having children couples are attempting to maximize their utilities, subject to constraints of resources and prices, remains a plausible if not a completely adequate conceptualization.

There are quite a number of different types of analyses that have taken the economic model as point of reference. After first touching briefly on studies of secular trends, long and short term cycles and other aggregate analyses, we will later review some cross-sectional studies. In secular trends, the basic observation is that levels of income have increased while fertility has decreased. But, as Becker (1960: 227) notes, other things, particularly tastes, costs and contraceptive knowledge, have also changed in the long run. Okun (1958) also argues that the rise in income has resulted in a secular rise in the level of living of children making children relatively more expensive than commodities.

Regarding long cycles, or Kuznets cycles, Easterlin (1968) has brought United States data into remarkable conformity with the economic model. The general idea put forth is that an economic boom results in increased immigration or increased fertility through its impact on the labour market. This migration or fertility effect, called a demographic swing, would in turn have a feedback effect on economic events through household growth and associated expenditure effects (idem, p. 13). Easterlin argues that post-war couples had more children because they were able to profit from an expanding economy and relatively good job opportunities. Since these couples had been socialized in a period of stringent economic austerity (during the 1930's), they had limited tastes for alternative economic goods. The more recent historical experience would present the opposite situation: the young have difficult access to the labour market and less promotion opportunities while their tastes, formed in their parent's households, make them desire high consumption levels (see particularly idem,

pp. 14-16, 124-125). Sweezy (1971: 259) has pointed out that the 1920's cannot be made to fit into this theory. This was a period of economic expansion with no associated demographic swing. He does not conclude that economic considerations play no part in fertility but simply that noneconomic motives outweighed economic ones at least in this particular period. For the period after 1957, Kantner (1970) observes that fertility has been declining at all ages while Easterlin's model would predict this decline only for the young.

The evidence from short term cycles, particularly in the United States, probably provides the clearest support of the economic model (see Kirk, 1960 and Silver, 1965). A basic problem in the analysis of short term cycles is that we are measuring the timing rather than the number of births. In Australia, Basavrajappa (1971) found that fertility responded very strongly to economic fluctuations in the period 1920-21 to 1937-38 but that, especially for the young, this response was not as evident in the period 1946-47 to 1966-67. Rao (1973: 105) found that in Canada fertility rates varied directly with per capita personal income for the period 1926-1957 but that the relation became negative for the period 1958-1964.

In a final type of aggregative study, some authors have related income and fertility measures for different regions or different countries at one point in time. Thus Weintraub (1962) and Adelman (1963) found a positive relationship between per capita income and birth rates in a large sample of nations. Heer (1966) found support for the following hypothesis: the direct effect of economic development is to increase fertility, but various other factors associated

with development (particularly level of education and reduction in infant and childhood mortality) reduce fertility.

Turning now to cross-sectional studies, there is evidence both for and against the economic model. In the Indianapolis survey, Becker (1960: 219) points out that there was a positive relation between husband's income and children ever-born for couples who planned the number and spacing of their children. However, Blake (1968: 8) is quick to indicate that this is not supported by data from the 1960 Growth of American Families study.

Using data from the 1955 Growth of American Families study, Freedman (1963) tested the relative income hypothesis on a subsample of nonfarm couples who were fecund planners. She found that husband's relative income was positively related to fertility for those who were married ten or more years. Husband's actual income was negatively related to fertility. For those who were married five to nine years, Freedman found that neither of the husband's income measures had a significant or consistent relation to fertility. In the latter group, it was the wife's work experience, especially the number of years worked, that had important negative relations to fertility (idem, pp. 418, 420).

Micer (1963) analyzed a subsample of families from a 1950 survey of consumer expenditures. The subsample consisted of 400 urban white husband-wife families whose husbands were fully employed during the year, with the wife aged 35-45 years and employed in the labor market some time during the year. The regression model indicated that number of children was positively related to husband's full-time

earnings, negatively related to wife's full-time earnings, and showed a weak negative relation to husband's education (idem, p. 77).

Freedman and Coombs (1966) have made a careful analysis of data from a 1962-63 longitudinal study in the Detroit Metropolitan Area. In general they found that current family income was not related to expected or preferred family size but that it was strongly related to the timing of demographic events. It was also found that high aspirations to provide certain things for the children, the ownership of two or more cars, and wife's labour force participation were related to expecting and preferring fewer children and to longer intervals between births (idem, pp. 221-222).

Bernhardt (1972) studied data from the register of the "fifteenth-born" in Sweden. Selecting couples who had been married 10-14 years, she found that the aggregate u-shaped relation between husband's income and fertility could be decomposed into a positive relation between income and low-order births, and a negative relation for fourth and higher order births. She thus suggested that a positive relationship is emerging in Sweden. This positive relation would not have been fully achieved because families of low economic status have less ability to control fertility beyond the third child. Bernhardt further found that if the wife contributed to family income, fertility was substantially lower. The latter relation tended to disappear at the top end of the income scale (idem, pp. 178-179, 183).

Turning now to negative cross-sectional findings, Blake (1967) analyzed data on ideal or preferred family size in the United States over a 30 year period. Though there was a relative lack of variability

in family size ideals by economic status, the relation tended to be inverse or slightly curvilinear. Blake points out that the relation was frequently u-shaped for Catholics. She argues that this is not evidence in support of the economic model since higher status Catholics would be submitting to normative pressures to have more children. That is, these Catholics are not viewing children as consumer durables. Blake's basic argument is that the income fertility relation generally remains negative because increasing income is associated with increasing child costs.

The evidence from census data in North America indicates that the relation between income and fertility has traditionally been negative but that a positive relation may be emerging. Thus Cho et al. (1970: 293) found that the United States differential current fertility by income of husband for the total population of native white has become positive in 1960. At the Canadian census of 1961 the relation between completed fertility and husband's income was u-shaped: Henripin (1968: 345-346) speaks of an emerging positive relationship.

In terminating this review of the literature, it is worth paying special attention to analyses of data from the Toronto fertility study. For the whole sample there is a generally u-shaped relation between husband's income and completed fertility, especially after controlling for other background factors (Balakrishnan et al., 1972: 59). However it was found that expected family size did not vary with income in any readily interpretable fashion. Thus the authors of the main report conclude that there is no support for the notion that the demand for children is income elastic (idem, p. 43). However, three

theses written on the basis of these data have tended to make use of the economic model. Osteria (1971) analyzed questions of childspacing and economic position of the family. Though there was an irregular tendency for increased income to be associated with increased childspacing, adjustment for other factors tended to eliminate this relation. The author concludes that premarital pregnancy was the only facet of childspacing that showed a significant association with the income position of the husband (idem, p. 23). Destler (1972) analyzed the wife's work experience before the first birth and its relation to fertility. She concentrated on a subsample of 808 respondents who were born in Canada, the United States or the United Kingdom, who were not premaritally pregnant nor subfecund and whose husbands worked full-time at marriage. The findings generally supported the hypothesis that employment "can influence lower fertility by exposing a woman to roles other than those of wife and mother and by putting a premium on her time and skills" (idem, p. 44). It was found that the influence of employment was strongest when the work experience was either good (i.e. high occupation or income relative to education) or extensive. Chaudhury (1973) found rather consistent support for the economic model using the concept of relative income and based on a subsample of 304 fecund, native urbanite, effective family planners. There was found to be a positive relationship between husband's relative income and fertility except in cases where the husband was either in a low status occupation or in the low income group (idem, p. 58). Relative income was found to have the strongest relationship with the interval from second to third birth, and particularly among women who had only three children (idem, p. 105). In addition, it was found that there

was no relation between relative income and consumption norms; that is, these couples appeared to vary their fertility in order to meet the consumption norms of their reference group. Chaudhury thus concludes that "the relative income model seems to be useful in predicting fertility behavior for a select population, i.e., those who exhibit a high degree of rationality in their life-planning decision and for those who have access and/or opportunity to maximize their consumption utilities" (idem, p. vi).

5.2 Operationalization of the variables in the model

We will now briefly describe the variables used in the economic model and give the categories into which they have been coded. Level of living is mostly measured through the husband's income in 1973. From the above it should be evident that the husband's income is to be preferred over the wife's or the family income for purposes of the present analysis. Though it means a reduction in sample size, using husband's income keeps the "income effect" separate from the "substitution effect". There are always problems in the measurement of income, particularly, as here, when the wife is taken as the source of information for her husband's income. For this reason, a second "proxy measure" has also been adopted. This proxy is a measure of current savings and the respondent's feeling of financial success. There are again problems with this measure since savings and the feeling of financial success may themselves be influenced by family size. We might also indicate that there are difficulties in relating the present economic situation to expected fertility. On the other hand, the couple's future income is generally related to its present income. In addition, the emphasis throughout is on current fertility.

Measurement becomes even more difficult when it comes to the utilities and costs of children. As Schultz (1969: 176) and others have noted, these are conceptual variables for which empirical counterparts are hard to find. Economists will agree that utilities are difficult to measure while inter-utility comparisons become all the more difficult. We are here attempting to get at the "preference for" or "tastes for" children in comparison to other consumption goods. Three measures have been developed: a behavioural measure called the "ownership of high status items", an attitudinal measure called "childbearing role", and a measure of an important factor in the formation of tastes called "proportion of years worked since age sixteen". The behavioural index is a measure of the taste for consumer goods through the number of high status items that the respondent's household owns or uses. These items are: large number of rooms in the home, colour television, dishwasher and two or more cars. Though these are only selected items, they may be useful, particularly after controlling for income, in making inter-utility comparisons.(4) Needless to say there are again problems with this index. First, some of the items, particularly the size of the home, may themselves be influenced by family size. Secondly, the index could be taken as a proxy for income rather than for consumer preferences. The attitudinal measure of the preference for children has been obtained by combining certain questions that get at preferences for the "childbearing role" as contrasted with the "work role" (the exact items are given below). The proportion of years worked since age sixteen is useful since extended work experience would be an indication of preference for this role, and the goods that it can offer, in contrast to the childbearing role. Again,

there is the problem that some women may work not out of preference but because they cannot have children. The questionnaire contained one possible measure of children as "producer durables". This was the social security question: "Q112. Do you expect to live with one of your children in your old age?". Though few respondents answered this question in the affirmative, it has been retained in parts of the following analysis.

Turning to the direct cost of children, the expenditures for post-secondary education are probably among those involving the most variability, especially within an urban population. These are also the only "direct costs" that are measured in the questionnaire. This variable has additional relevance in that it is a good measure of investment into child quality. The item certainly has its limitations particularly since it is a measure of the intention to support children in post-secondary education. Especially for women who have no children, this is a rather hypothetical matter. Additional doubts may be cast on the validity of the responses when we note that the large majority of respondents seem to be willing to provide full support for four years of education (or as long as necessary).

An important aspect of indirect or opportunity costs is the number of work years that the mother loses by having children. This measure was developed on the basis of norms regarding the age the child should be before the mother works and the ideal ages at which the mother should have her first and last child. Schultz (1973: S7-S8) has suggested using the woman's education as a measure of the price of her time. Though this has some merit, there is a danger in that, as

Michael (1973) points out, the level of education is often "interpreted in empirical work as a good proxy variable for whatever is of interest to the researcher". We will simply limit ourselves to the implied work years lost through childbearing. Since this measure was developed on the basis of norms rather than actual experience, it is not necessary to adjust the index for the respondent's age.

For the dependent variable, the major focus will again be on current and expected family size. Since the model refers to fertility as reflecting rational decisions, the unwanted births were subtracted to obtain the current wanted family size and the expected wanted family size. As Becker (1960) notes, unwanted births are an error factor in the economic model. This error factor is somewhat reduced by limiting the analysis to wanted births. Needless to say, there are problems in the measurement of unwanted births; as Ryder (1973a: 503) puts it, "conceivably we are measuring not so much the incidence of unwanted births as the extent to which the couple can summon up the resources necessary to cope with and rationalize such occurrences". Following suggestions by Becker (1960), Namboodiri (1970, 1972a) and others, desired family size will here be used as a third dependent variable. This question seems to focus well on family size as a result of deliberate choice unimpeded by possible intervening circumstances: "Q 105. If you could now choose exactly the number of children to have altogether in your lifetime, how many girls and how many boys would you choose?". In responding to this hypothetical situation, "if you could now choose exactly", the respondent may envision a situation where other things are also different. Thus it is difficult to claim that the question measures desired fertility with other circumstances

remaining the same. There are certainly other dependent variables that could be employed. Ryder (1973b) proposes that the age of wife (and husband) at the birth of the first (intended) child, and the decision whether or not to have a third child, are aspects of the reproductive process which are most clearly discretionary. These will not be studied here partly for lack of time and space, partly because they would necessitate a considerable reduction in sample size. The three dependent variables, current wanted family size, expected wanted family size, and desired family size, are each adjusted for the respondent's age and marital status; that is, they are measured "net age and marital status".

The variables mentioned above are listed below with the categories into which they have been coded and their sources in the questionnaire.

Husband's income in 1973 (Q 175)
1 under $7,000
2 $7,000 – $9,999
3 $10,000 – $14,999
4 $15,000 and over
9 missing data

Financial success (QQ 190, 193)
1 Low: could not pay a month's bills out of family savings, or respondent judges her and her husband's financial success to be fair or poor
2 Medium: could pay a month's bills out of family savings and respondent judges her and her husband's financial success to be good
3 High: could pay a month's bills out of family savings and respondent judges her and her husband's financial success to be very good.

Ownership of high status items (QQ 214, 215, 216, 217)
The items are: house with six or more rooms, two or more cars, colour television, dishwasher.
1 Low: none of these four are owned or used
2 Low medium: one of the four are owned or used
3 High medium: two or the four are owned or used

4 High: three or more of these four are owned or used
9 missing data

Childbearing role (QQ 14, 116, 201, 203)
1 Low: three or four of the following items were answered favourably: would prefer to be working now; understand or envy couples who have no children; disagree with the notion that it is best if the man is the achiever outside the home; disagree with the notion that women are happiest at home
2 Medium: mixed or noncommittal responses on these four items
3 High: three or four of the following items were answered favourably: would prefer not to be working now; disapprove of couples who have no children; agree that it is best if the man is the achiever outside the home; agree that women are happiest at home
9 missing data

Proportion of years worked since age sixteen (QQ 1, 12)
1 no recorded work experience
2 worked from 1% to 24% of the time since age sixteen
3 worked from 25% to 49% of the time since age sixteen
4 worked 50% or more of the time since age sixteen

Social security (Q 112. Do you expect to live with one of your children in your old age?)
1 no
2 yes
9 missing data

Extent of intended post-secondary support (QQ 194, 195, 196)
1 Low (approximately less than $4,000): no support, or room and board, or full support (or as much as necessary) for one year
2 Medium (approximately $4,000 to $7,999): full support (or as much as necessary) for two to three years
3 High (approximately $8,000 or more): full support (or as much as necessary) for four or more years (or for as long as necessary)
9 missing data

Implied work years lost through childbearing (QQ 15, 16, 109, 110, 111, 114)
The following calculation was done separately for part time and full time work:
- if a child needs to be older than the ideal years between children before the mother works: take the ideal age of mother at birth of last child, subtract ideal age of mother at birth of first child, add age the youngest child needs to be before the mother works
- if a child does not need to be older than the ideal years between children before the mother works; take the age the child needs to be before the mother works and multiply this by the average number of children in the ideal Canadian family

The total implied number of work years lost is then calculated as:
part + ((full − part) / 2)
where: part = work years lost while mother cannot work part time
full = work years lost while mother cannot work full time

These results were then coded as follows:
1 zero to eight years
2 nine to twelve years
3 thirteen to eighteen years
4 nineteen or more years
9 missing data

Current wanted family size (QQ 31, 32, 33, 40, 65)
Subtract unwanted births (would have preferred this pregnancy "not at all") from live births

Expected wanted family size (results of Appendix A plus QQ 40, 65)
Subtract unwanted births from expected family size

Desired family size (Q 105)

5.3 Fertility effect of the variables considered separately

As in the previous chapters, this section presents cell means for current wanted family size (net age and marital status) for the eight ethnic groups along categories of the operationalized variables of the economic model, and MCA adjustments of the ethnic fertility differentials for the effects of these variables. The analysis is supported by analysis of variance results presented in appendix Tables B.15 to B.21.

Correlation coefficients among the variables of the economic model are presented in Table 5.1. We note that none of the correlations are sufficiently high to lead to problems of multicolinearity. The highest correlations occur among the measures of husband's income, financial success and ownership of high status items. The associations (Eta) of the economic variables with current wanted family size are also given in Table 5.1. The four following variables show stronger associations with current fertility than does respondent's

Table 5.1 Association (Eta) between variables of the economic model and current wanted family size (net age and marital status) and correlation coefficients among variables of the economic model.

Independent variables	Eta*	CORRELATIONS								
		1	2	3	4	5	6	7	8	9
1 R's ethnicity	.11	xxx								
2 H's income	.07	xxx	1.0							
3 Ownership	.07	xxx	.49	1.0						
4 Fin. success	.18	xxx	.41	.43	1.0					
5 Direct costs	.13	xxx	.14	.07	.15	1.0				
6 Opportunity costs	.07	xxx	.10	.11	.01	-.00	1.0			
7 Social security	.03	xxx	-.04	-.06	-.07	-.00	.07	1.0		
8 Childbearing role	.19	xxx	-.06	-.03	-.09	-.02	.28	.12	1.0	
9 Years worked	.26	xxx	.05	-.01	.09	-.07	-.19	-.13	-.24	1.0

3 Ownership: ownership of high status items.
4 Fin. success: financial success.
5 Direct costs: extent of intended post-secondary support.
6 Opportunity costs: implied work years lost through childbearing.
9 Years worked: proportion of years worked since age sixteen.

* Eta is the square root of the ratio of the sum of squares based on the unadjusted deviation for a predictor to total sum of squares. It is the correlation ratio and indicates the ability of the predictor, using categories given, to explain variation in the dependent variable.

xxx Correlation coefficients are not calculated for nominal variables.

ethnicity: extent of intended post-secondary support, financial success, childbearing role, and proportion of years worked since age sixteen. The latter is the strongest of the associations presented in similar tables throughout the thesis (Tables 3.1, 4.7 and 5.1).

Tables 5.2 and 5.3 give the crosstabulations by, and adjustments for, the two measures of level of living. For the total group, the range of the category means for husband's income is only 0.27 children while that for financial success is 0.55 children. The variance explained by husband's income does not attain statistical significance while that due to financial success is significant at the .01 level (Tables B.15 and B.16). After removing the variance due to level of living, that due to ethnicity loses statistical significance. Both measures show a somewhat u-shaped relation to current family size with lowest fertility occuring at intermediate levels of living. This is in agreement with other Canadian results noted earlier from the Toronto study and 1961 census. Within ethnic groups, this u-shaped pattern is not particularly predominant while there are several instances of negative relations between level of living and fertility. Though the fertility levels of the ethnic groups are not equally affected by the variables measuring level of living, the differences tend to be small. The adjustments for level of living in the ethnic deviations are very minor; the largest change is the reduction by 0.05 children in the positive deviation of the French group after adjusting for the effect of husband's income. Levels of living thus do not have a very strong influence on the ethnic fertility differentials.

Table 5.2 Current wanted family size (net age and marital status) by ethnicity and husband's income in 1973. Unadjusted and adjusted deviations by ethnicity.

Ethnicity	HUSBAND'S INCOME				DEVIATIONS FROM GRAND MEAN	
	Under $7,000	$7,000-$9,999	$10,000-$14,999	$15,000+	Unadjusted	Adjusted
	(1)	(2)	(3)	(4)	(5)	(6)
British	-.30	-.22	-.11	.00	-.15	-.14
German	.28	.19	.07	-.50	.10	.10
French	.61	.73	.06	xxx	.37	.37
Irish	.10	.02	-.06	xxx	.06	.05
Other W.E.	.42	.15	-.21	.65	.16	.17
Ukrainian	.14	-.28	-.28	xxx	-.18	-.18
Other E.E.	.00	-.64	-.32	.63	-.15	-.14
Other	.40	-.09	.14	-.61	.04	-.00
Total	.16	-.05	-.11	.01	.00	.00
N	174	211	217	108	710	710

xxx Category contains fewer than 10 cases.

Note: The sample size is reduced from 1045 due to missing data on one or more of the variables.

Table 5.3 Current wanted family size (net age and marital status) by ethnicity and financial success. Unadjusted and adjusted deviations by ethnicity.

Ethnicity	FINANCIAL SUCCESS			DEVIATIONS FROM GRAND MEAN	
	Low	Medium	High	Unadjusted	Adjusted
	(1)	(2)	(3)	(4)	(5)
British	.12	-.30	-.12	-.14	-.11
German	.56	-.34	-.22	.07	.04
French	.66	.40	.01	.42	.37
Irish	.55	-.11	xxx	.13	.13
Other W.E.	.12	-.08	.35	.06	.07
Ukrainian	.65	-.38	-.78	-.08	-.08
Other E.E.	.27	-.25	-.42	-.11	-.11
Other	-.10	-.16	xxx	-.10	-.12
Total	.34	-.21	-.14	.00	.00
N	310	314	149	773	773

xxx Category contains fewer than 10 cases.

Note: The sample size is reduced from 1045 due to missing data on one or more of the variables.

The variables which attempt to measure relative preferences for children (or the childbearing role) versus other consumer goods (or other roles) are presented in Tables 5.4, 5.5 and 5.6. The ownership of high status items, which is presented first, is not a particularly good measure until one controls at least for income (see the next section). It does not show strong variation for the entire sample and does not attain statistical significance (Table B.17). The relation is curvilinear with highest fertility at intermediate levels of ownership of status items. In no ethnic group do we find the expected negative relation that would represent a trade-off between children and other consumer items.(5)

Tables 5.5 and 5.6 present the most uniform results of this section: a positive relation between attachment to the childbearing role and fertility (6), and a negative relation between proportion of years worked since age sixteen and fertility. On the latter, the relation within ethnic groups is not always uniformly negative but it is always negative when considering the more extreme categories. Both childbearing role and proportion of years worked explain enough of the variance in current wanted family size to attain statistical significance at the .01 level (Tables B.18 and B.19). It can be seen that the adjustments in the ethnic deviations remain minor. The differentials for the French and Other groups are decreased by more than 0.05 children in Table 5.5 and the differential for the Other group changes from positive to negative in Table 5.6. Thus these two measures of relative preferences for children have considerable influence on fertility but the influence is generally uniform among ethnic groups.

Table 5.4 Current wanted family size (net age and marital status) by ethnicity and ownership of high status items. Unadjusted and adjusted deviations by ethnicity.

Ethnicity	OWNERSHIP OF STATUS ITEMS				DEVIATIONS FROM GRAND MEAN	
	Low	Low med.	High med.	High	Unadjusted	Adjusted
	(1)	(2)	(3)	(4)	(5)	(6)
British	-.34	-.15	-.04	-.17	-.14	-.14
German	.01	.00	.05	.04	.06	.07
French	-.22	.62	.48	.21	.33	.32
Irish	.17	.42	-.47	-.28	.05	.06
Other W.E.	-.31	-.10	.38	.28	.05	.05
Ukrainian	-.16	.17	-.00	-.31	-.03	-.04
Other E.E.	-.06	-.10	-.32	.16	-.03	-.03
Other	-.02	-.09	.46	-.31	.02	.02
Total	-.15	.05	.05	-.07	.00	.00
N	274	275	211	230	990	990

Note: The sample size is reduced from 1045 due to missing data on one or more of the variables.

Table 5.5 Current wanted family size (net age and marital status) by ethnicity and childbearing role. Unadjusted and adjusted deviations by ethnicity.

Ethnicity	CHILDBEARING ROLE			DEVIATIONS FROM GRAND MEAN	
	Low	Medium	High	Unadjusted	Adjusted
	(1)	(2)	(3)	(4)	(5)
British	-.44	-.10	.26	-.15	-.12
German	-.19	-.01	.81	.05	.07
French	-.36	.39	.62	.33	.26
Irish	-.30	.26	xxx	.13	.18
Other W.E.	-.39	.06	.54	.04	.02
Ukrainian	-.31	-.16	.76	-.06	-.06
Other E.E.	.31	-.15	-.11	-.04	-.08
Other	-.50	.14	.40	.08	.02
Total	-.34	.01	.49	.00	.00
N	274	597	141	1012	1012

xxx Category contains fewer than 10 cases.

Note: The sample size is reduced from 1045 due to missing data on one or more of the variables.

Table 5.6 Current wanted family size (net age and marital status) by ethnicity and proportion of years worked since age sixteen. Unadjusted and adjusted deviations by ethnicity.

Ethnicity	PROPORTION OF YEARS WORKED				DEVIATIONS FROM GRAND MEAN	
	Nil	0-24%	25-49%	50%+	Unadjusted	Adjusted
	(1)	(2)	(3)	(4)	(5)	(6)
British	.01	.15	-.22	-.47	-.15	-.13
German	-.00	.41	.10	-.26	.05	.06
French	.72	1.07	-.02	-.36	.33	.29
Irish	xxx	.20	.38	-.42	.13	.15
Other W.E.	.63	.17	.29	-.54	.04	.05
Ukrainian	.46	.49	-.18	-.84	-.05	-.07
Other E.E.	.47	.23	-.17	-.44	-.04	-.03
Other	.34	.39	-.47	-.27	.07	-.02
Total	.34	.31	-.04	-.47	.00	.00
N	163	263	264	325	1015	1015

xxx Category contains fewer than 10 cases.

Note: The sample size is reduced from 1045 due to missing data on one or more of the variables.

The measure of social security is not presented because only the British and Other groups had ten or more respondents who expected to live with a child in old age. For the whole sample high social security is associated with high fertility though there is only a range of 0.17 children between the two categories of this variable.

The results for the measure of direct costs are presented in Table 5.7. As would be predicted, the respondents who intended to give greater support to their children in post-secondary education had lower current wanted family size. This negative relation is repeated in each ethnic group at least if the comparison is limited to the two extreme categories of the direct costs variable. Once again, the adjustments for direct costs introduce only minor adjustments in the ethnic deviations.

The variance explained by the direct costs variable is significant at the .01 level (Table B.20). The variance explained by ethnicity, after removing that due to direct costs, remains significant at the .05 level. This is in contrast with the other tables considered in this section where the net effect of ethnicity is not significant. It might be pointed out that the effect of ethnicity on wanted family size is significant at the .01 level (table not presented). We also note that none of the interaction effects with ethnicity attain statistical significance (Tables B.15 to B.21).

The indirect or opportunity costs are measured by the implied work years lost through childbearing. Though this appears to be an exciting measure, the results presented in Table 5.8 are generally

Table 5.7 Current wanted family size (net age and marital status) by ethnicity and extent of intended post-secondary support. Unadjusted and adjusted deviations by ethnicity.

Ethnicity	INTENDED SUPPORT			DEVIATIONS FROM GRAND MEAN	
	Low	Medium	High	Unadjusted	Adjusted
	(1)	(2)	(3)	(4)	(5)
British	.02	-.17	-.22	-.16	-.16
German	.58	-.27	.02	.07	.08
French	1.79	xxx	.19	.47	.47
Irish	.55	xxx	.04	.13	.15
Other W.E.	.14	.10	-.06	.01	-.00
Ukrainian	.11	.36	-.14	-.04	-.04
Other E.E.	.47	xxx	-.28	-.04	-.07
Other	xxx	xxx	-.10	-.09	-.03
Total	.36	-.09	-.09	.00	.00
N	159	122	635	916	916

xxx Category contains fewer than 10 cases.

Note: The sample size is reduced from 1045 due to missing data on one or more of the variables.

Table 5.8 Current wanted family size (net age and marital status) by ethnicity and implied work years lost through childbearing. Unadjusted and adjusted deviations by ethnicity.

Ethnicity	IMPLIED WORK YEARS LOST				DEVIATIONS FROM GRAND MEAN	
	0-8 yrs.	9-12 yrs.	13-18 yrs.	19+ yrs.	Unadjusted	Adjusted
	(1)	(2)	(3)	(4)	(5)	(6)
British	-.14	-.17	.12	-.26	-.09	-.08
German	.08	-.11	-.11	.26	.04	.02
French	-.00	.17	-.15	.74	.16	.14
Irish	.11	.12	-.00	xxx	.17	.19
Other W.E.	-.15	-.12	.11	.16	.00	-.01
Ukrainian	-.12	-.42	.16	-.02	-.12	-.11
Other E.E.	-.24	.29	.36	-.20	-.01	-.01
Other	.05	-.21	.47	.23	.11	.12
Total	-.08	-.11	.08	.11	.00	.00
N	220	199	242	192	853	853

xxx Category contains fewer than 10 cases.

Note: The sample size is reduced from 1045 due to missing data on one or more of the variables.

contrary to the expected negative relation between indirect costs and fertility. In addition, the patterns within ethnic groups are diverse and generally impossible to summarize. The variance explained by this variable is not significant (Table B.21). It would appear that there is here a contamination between opportunity costs and childbearing role. That is, those who indicate that the mother should not work until the child is older may be responding to an interest in the childbearing role rather than to an opportunity cost.

In concluding this section it is worth noting again that the adjustments in ethnic deviations in Tables 5.2 to 5.8 are very minor. There are only four cases where the adjusted deviation from the grand mean for a given ethnicity differs from the unadjusted deviation by more than 0.05 children. These larger adjustments occur as follows: reduction in deviations associated with the French and Other ethnic groups when childbearing role is controlled; reduction in the Other group when direct cost is controlled; and change from positive to negative deviation in the Other group when proportion of years worked is controlled. The fact that these adjustments are minor would tend to indicate that these variables of the economic model do not account for the observed differences in ethnic fertilities.

5.4 Fertility effect of the variables acting together

We have seen through the literature review that the economic model suggests specific hypotheses which may imply relatively complex models involving indirect effects. Though these hypotheses are interesting, the purpose of bringing this economic model into the present analysis is simply to determine whether the variables of this

model can contribute to the explanation of ethnic fertility differentials. These more complex alternatives have thus been judged to be out of context in the present thesis. In addition, alternative considerations would always be limited by the sample sizes within the various ethnic groups.

The MCA results on all variables acting together are presented in Table 5.9. Due to missing data on one or more of the eight independent variables, or on the dependent variable for expected and desired family size, the sample size is considerably reduced. Since the husband's income is included, we are in fact limiting the analysis to currently married women. Additive adjustments are here made for the effects of the seven operationalized variables of the economic model. It is seen that these adjustments have only a minor effect on the ethnic deviations. The range in deviations changes from 0.51 children to 0.61 children for current wanted family size, from 0.68 to 0.69 for expected wanted family size and from 0.28 to 0.38 for desired family size. In five of these six ranges the French have highest fertility while the Other group have lowest fertility. Among the 24 separate adjustments (eight ethnicities times three dependent variables) there are only four cases where the adjustment is of more than 0.10 children: the Other Western European group shows a decrease in both current and expected fertility, the Irish show an increase in desired fertility, and the Others a decrease in desired fertility. The two adjustments in current and expected family size can be compared with four similar adjustments for background factors (Table 3.10) and nine adjustments for assimilation factors (Tables 4.15 and 4.16 rightmost sets of columns). Thus we have rather strong evidence

Table 5.9 Unadjusted and adjusted deviations in current wanted, expected wanted, and desired family size (each measured net age and marital status) by ethnicity. Beta weights for variables in the economic model and multiple correlation coefficients for all variables acting together.

Ethnicity	CURRENT			EXPECTED			DESIRED		
		Deviations			Deviations			Deviations	
	N	Unadj.	Adj.	N	Unadj.	Adj.	N	Unadj.	Adj.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
British	159	-.06	.00	149	-.12	-.06	149	-.09	-.07
German	77	.10	.15	75	.19	.27	74	-.04	.01
French	55	.33	.27	51	.49	.41	55	.16	.09
Irish	34	.00	.01	34	-.05	.00	33	-.00	.12
Other W.E.	82	.14	.00	80	.00	-.12	79	.11	.07
Ukrainian	67	-.22	-.20	65	-.18	-.15	64	.06	.09
Other E.E.	40	-.03	-.05	39	.02	-.06	38	-.00	-.05
Other	31	-.28	-.34	31	-.19	-.28	29	-.12	-.26
Total	545	.00	.00	524	.00	.00	521	.00	.00
BETA									
Ethnicity	.11			.13			.08		
H's income	.05			.08			.13		
Financial success	.16			.09			.03		
Ownership	.14			.06			.10		
Childbearing role	.20			.23			.21		
Years worked	.24			.15			.04		
Intended support	.11			.12			.04		
Years lost	.09			.10			.16		
MULTIPLE R	.38			.33			.26		

Notes: 1) When deviations from the grand mean are adjusted, they are adjusted for husband's income, financial success, ownership of high status items, childbearing role, proportion of years worked since age sixteen, extent of intended post-secondary support, and implied work years lost through childbearing.

2) The sample size is reduced from 1045 due to missing data on one or more of the variables.

indicating that ethnic fertility differences cannot be attributed to the ethnicities having different distributions on the variables of the economic model.

Turning to the study of the beta weights given in Table 5.9, we note that childbearing role and years worked are the most useful variables in models with current and expected family size while childbearing role and implied work years lost are the most useful in the model that has desired family size as the dependent variable. There is thus an indication that the variables measuring relative preferences for children have the highest weights among the variables of the economic model.

The multiple correlation coefficients of 0.38 and 0.33 for current and expected family size are considerably higher than equivalent results of 0.23 and 0.20 for background factors (Table 3.10) and 0.17 and 0.19 for assimilation factors (Tables 4.15 and 4.16 rightmost sets of columns). The chosen set of variables of the economic model is therefore a stronger predictor of fertility than the sets of background and assimilation factors. The results for desired family size (multiple correlation coefficient of 0.26) fare reasonably well in comparison with explained variances of previous chapters but poorly in comparison to the results on current and expected fertility in this chapter. This is probably a reflection of the hypothetical nature of a question on desired family size. When anwering this question, the respondent may assume that other factors besides family size would be as she desires them. For example, she may be assuming a different income, or even a different husband.

As indicated earlier (Section 3.6), the statistical model used in standard multiple regression does not differ greatly from that of the multiple classification analysis. However, these two procedures are applied with slightly different objectives. The MCA was used on all ethnic groups together in order to adjust the ethnic deviations for the effects of the variables of the economic model. Regression analysis is applied to each ethnic group separately in order to determine whether these variables have similar effect (sign and size of coefficients) in the various ethnic groups.

For purposes of regression analysis, the variable financial success has not been retained. Two justifications can be made for this elimination. First, it overlaps, at least conceptually, with husband's income as a measure of level of living. Second, financial success, especially as regards the ability to pay next month's bills, could be seen as partly a consequence rather than a cause of family size. The six following independent variables were introduced: husband's income, ownership of high status items, childbearing role, proportion of years worked since age sixteen, extent of intended post-secondary support, and implied work years lost through childbearing. This regression was done separately for each ethnic group and for the three dependent variables of current wanted family size, expected wanted family size, and desired family size. The resulting regression coefficients, with their associated standard errors, and multiple correlation coefficients are presented in Tables 5.10, 5.11 and 5.12.

Taking first Table 5.10, with current fertility as the dependent variable, it can be seen that 13 out of the 54 regression

Table 5.10 Regression coefficients and standard errors by ethnicity using husband's income, ownership of high status items, childbearing role, proportion of years worked since age sixteen, extent of intended post-secondary support and implied work years lost through childbearing as independent variables and completed wanted family size (net age and marital status) as dependent variable.

		COEFFICIENTS AND (SIGMAS)						
Ethnicity	N	H's income	Ownership	Childbearing	Yrs. worked	Support	Yrs. lost	Multiple R
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
British	161	.08 (.07)	.07 (.07)	.40 (.08)*	-.10 (.03)*	-.01 (.09)	-.03 (.01)*	.50
German	77	-.13 (.15)	.11 (.14)	.61 (.17)*	-.12 (.06)*	-.36 (.19)	-.00 (.02)	.53
French	55	-.05 (.17)	.03 (.17)	.27 (.19)	-.14 (.05)*	-.68 (.22)*	-.03 (.03)	.55
Irish	34	.24 (.19)	-.10 (.14)	.02 (.25)	-.04 (.10)	-.38 (.25)	.03 (.03)	.40
Other W.E.	84	-.13 (.18)	.27 (.15)	.37 (.18)*	-.12 (.07)	-.18 (.18)	-.02 (.03)	.34
Ukrainian	70	-.20 (.17)	.01 (.14)	.13 (.16)	-.18 (.05)*	-.06 (.16)	-.03 (.02)	.47
Other E.E.	41	.19 (.22)	.06 (.20)	-.06 (.20)	-.16 (.09)	-.38 (.22)	-.03 (.03)	.40
Other	33	-.16 (.14)	.21 (.21)	.22 (.18)	-.04 (.06)	.14 (.27)	.07 (.03)*	.64
Total	555	-.02 (.05)	.09 (.05)	.31 (.05)*	-.11 (.02)*	-.20 (.06)*	-.02 (.01)	.39

* Coefficient is twice its standard error.

Notes: 1) In computing the coefficients a more complete set of categories than that indicated in the text has been used.

2) The sample size is reduced from 1045 due to missing data on one or more of the variables.

coefficients are at least twice their standard errors (that is, significantly different from zero at the .05 level). On the total sample of 555 respondents who had responses on all variables involved, half of the coefficients reach this level of significance. The multiple correlation coefficients are generally higher than those observed in earlier chapters (Tables 3.11 and 4.17). This again shows that the economic model proves to be a more powerful explanatory tool than those involving the selected sets of background or assimilation factors. However, the signs of the relations in the economic model are not all in the expected direction. Becker's expected positive relation between husband's income and fertility only occurs for the British, Irish and Other Eastern European groups. None of these coefficients are very large. We thus have the situation expected by Simon, Hawthorn, Namboodiri and others (Section 5.1) wherein the relation between income and fertility varies within narrow limits around the measure of no association. The variable "ownership of high status items" was to have measured the relative preference for material goods and was thus predicted to show a negative relation to fertility. Table 5.10 indicates that the expected relation only emerges for the Irish group.(7) Except in the Other Eastern European group, the variable childbearing role has the expected positive relation to current fertility. There is also a uniformly negative relation between proportion of years worked since age sixteen and fertility. The expected negative sign also emerges for the direct costs of children (extend of intended post-secondary support), except in the Other group. The situation with implied work years lost is considerably less confused than in Table 5.8. The expected negative coeffi-

cients occur except in the Irish and Other groups. As indicated earlier, it is possible that problems of measurement are responsible for some of the coefficients which are of signs other than predicted.

In spite of the small sample sizes, there is considerable uniformity among ethnic groups in the application of the economic model. Neglecting income, where the predicted relation is unclear, the first six ethnic groups each have one coefficient that has a sign other than that expected. The Other Eastern European and Other groups have respectively two and three coefficients that are of a direction other than that predicted. The main offending variable is ownership of status items. As indicated earlier, it is possible that some of the items used in building this variable are associated with larger families. This problem would contaminate the variable's ability to measure relative preferences for consumer goods.

Looking at the relative strengths of coefficients, it is again evident that two of the variables measuring tastes or relative preferences (childbearing role and years worked) generally have the highest coefficients. The direct cost variable (extent of intended post-secondary support) would rank third in relative importance within the model under consideration.

The results for expected wanted family size (Table 5.11) are essentially similar to those for current fertility. The French are here added to the groups showing a positive relation between income and fertility. This group in fact has here a perfect record of having the expected sign on all six variables. The Ukrainian group also fits the model closely, though income has a negative coefficient. We note

Table 5.11 Regression coefficients and standard errors by ethnicity using husband's income, ownership of high status items, childbearing role, proportion of years worked since age sixteen, extent of intended post-secondary support and implied work years lost through childbearing as independent variables and expected wanted family size (net age and marital status) as dependent variable.

		COEFFICIENTS AND (SIGMAS)						
Ethnicity	N	H's income	Ownership	Childbearing	Yrs. worked	Support	Yrs. lost	Multiple R
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
British	150	.13 (.08)	-.01 (.07)	.35 (.08)*	-.07 (.03)*	.03 (.11)	-.03 (.01)*	.41
German	75	-.01 (.14)	.09 (.14)	.66 (.17)*	-.12 (.06)*	-.48 (.18)*	.00 (.02)	.58
French	51	.08 (.24)	-.26 (.25)	.54 (.27)*	-.04 (.08)	-.61 (.31)	-.01 (.05)	.45
Irish	34	.13 (.20)	-.12 (.14)	-.07 (.27)	-.00 (.11)	-.38 (.27)	.04 (.03)	.39
Other W.E.	82	-.08 (.18)	.28 (.16)	.28 (.18)	-.12 (.08)	-.21 (.18)	-.01 (.03)*	.32
Ukrainian	67	-.24 (.18)	-.10 (.14)	.15 (.17)	-.13 (.06)*	-.11 (.17)	-.00 (.02)	.46
Other E.E.	40	.08 (.24)	-.05 (.22)	.19 (.22)	-.03 (.10)	-.14 (.24)	.01 (.03)	.28
Other	33	-.13 (.17)	.38 (.24)	.48 (.22)*	.00 (.07)	-.16 (.31)	.00 (.03)	.56
Total	532	-.00 (.05)	.02 (.05)	.34 (.06)*	-.07 (.02)*	-.21 (.06)*	-.01 (.01)	.35

* Coefficient is twice its standard error.

Notes: 1) In computing the coefficients a more complete set of categories than than indicated in the text has been used.

2) The sample size is reduced from 1045 due to missing data on one or more of the variables.

that ownership has the expected negative coefficient for five of the ethnic groups. This time it is the variable measuring indirect costs that acts contrary to expectations in four of the eight ethnic groups.

Using desired family size (Table 5.12) as the dependent variable results in generally lower multiple correlation coefficients and in a smaller number of significant coefficients. Only five of the 54 coefficients are at least twice their standard errors in comparison to 13 in each of the two previous tables. The model here fits best with the German, French and Ukrainian groups, and worst for the Other Eastern European group. There is less uniformity among ethnic groups in the signs and strengths of the relations than in the two previous tables. The opportunity cost variable (implied number of work years lost) is here particularly problematic; it generally has a positive relation to desired fertility.

Since some of the variables produced results other than expected, a certain amount of experimenting was done on the total sample to see if better results could be produced. The variables ownership of high status items and implied work years lost through childbearing each often had signs of coefficients different from that predicted by the economic model. However, eliminating them from the model did not change the other coefficents to any significant degree (tables not presented). Additional runs were also made using financial success rather than husband's income for the measure of level of living. This produced a significant negative coefficient (between level of living and fertility) for current and expected family size and a weak positive coefficient for desired family size. Once again

Table 5.12 Regression coefficients and standard errors by ethnicity using husband's income, ownership of high status items, childbearing role, proportion of years worked since age sixteen, extent of intended post-secondary support and implied work years lost through childbearing as independent variables and desired family size (net age and marital status) as dependent variable.

		COEFFICIENTS AND (SIGMAS)						
Ethnicity	N	H's income	Ownership	Childbearing	Yrs. worked	Support	Yrs. lost	Multiple R
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
British	151	.10 (.08)	-.05 (.07)	.28 (.08)*	-.05 (.03)	.01 (.09)	.01 (.01)	.38
German	74	.13 (.12)	.17 (.10)	.02 (.13)	-.01 (.05)	-.04 (.14)	-.03 (.02)	.35
French	55	-.08 (.15)	-.11 (.15)	.08 (.17)	.08 (.05)	-.01 (.19)	.01 (.03)	.31
Irish	33	.14 (.15)	-.13 (.11)	-.11 (.19)	-.04 (.08)	-.35 (.20)	.03 (.02)	.48
Other W.E.	81	-.16 (.17)	.14 (.14)	.24 (.17)	-.05 (.07)	.04 (.16)	.02 (.03)	.29
Ukrainian	67	-.01 (.14)	-.12 (.11)	.09 (.13)	-.08 (.04)*	-.07 (.13)	.05 (.02)*	.49
Other E.E.	39	-.07 (.30)	.30 (.26)	.05 (.28)	.06 (.12)	.22 (.30)	.05 (.04)	.35
Other	31	.20 (.23)	-.28 (.31)	.55 (.29)	.10 (.10)	.28 (.38)	.07 (.04)	.57
Total	531	.03 (.05)	-.00 (.04)	.19 (.05)*	-.01 (.02)	-.03 (.06)	.02 (.01)*	.24

* Coefficient is twice its standard error.

Notes: 1) In computing the coefficients a more complete set of categories than that indicated in the text has been used.

2) The sample size is reduced from 1045 due to missing data on one or more of the variables.

the other coefficients in the model were largely unchanged through this substitution (tables not presented).

The most concise way to summarize this chapter is to say that we have found that the economic model was useful in the explanation of fertility but that the model could generally not account for the ethnic differentials which we set out to explain. Though the economic model certainly did not fit the data perfectly, explained variances were higher than with the two other sets of background and assimilation factors considered in earlier chapters. The variables measuring relative preferences for children and direct costs of children were particularly consistent in showing the expected relations and in emerging as powerful explanatory variables. In spite of the relative strenght of the economic model, adjusting for the values obtained on the variables of this model did not reduce ethnic differentials to any significant degree. The evidence from the regression analysis indicated that the model applied in a somewhat equal degree to the various ethnic groups so that it could not be held responsible for the ethnic differentials under investigation.

CHAPTER 6

SUMMARY AND CONCLUSIONS

6.1 Summary of the thesis

Broadly speaking, the present thesis takes its place among enquiries into the existence and scope of differential demographic behaviour. Such studies have a central place in the development of a discipline. It is through the search for differences that scientists are able to identify the variables that are important in the understanding of a given phenomena. The main objective of any scientific analysis is the identification of the determinants or causal factors involved in the processes being studied. One way to locate these factors or determinants is through the examination of subgroup differences. This examination brings the researcher one step closer to the formulation of a theory that would fit the observed differentials or that would explain the variation under investigation.

The subject area under consideration is that of the differential fertility of social groups. This is an area where the causal factors are far from being established, and where there is a consequent need to continue in the study of relevant differentials. The specific differentials analyzed here are those which relate to the ethnic or national origin grouping of a population. The various ethnic groups which have come to form the Canadian population have varied on a large number of behavioural characteristics, not the least of which is fertility. It is thus of interest to determine the extent to which this variation has been retained and the factors that might be seen as sources of the differentials.

In reviewing the general approaches that authors have taken regarding the relevance of ethnicity to fertility, two conflicting orientations were found to be prevalent. Some authors have argued that with urbanization, increasing exchange, around individuals and groups, and the consequent participation in common life, the origin concept is becoming a purely formal characteristic with little or no behavioural relevance. Others have proposed that such factors as urbanization have their influence but these influences will not bring the disappearance of ethnic and religious differentials; these authors would thus expect that differences based on cultural inheritance will retain an impact on fertility.

Among those who maintain that ethnicity should make a difference, there are again variations regarding the bases for this expectation. Differences in the fertility behaviour of ethnic groups are said to reflect either responses to different life situations, or differences in normative forces and in the way these operate. The first orientation, that different life situations are the sources of the differential behaviour, has been labeled the "characteristics approach". This approach would essentially claim that the distinct fertility of subgroups merely reflects the matrix of social, demographic and economic attributes that characterizes these subgroups. The alternative orientation, that normative considerations are at the origin of the differentials, can be subdivided into three slightly different approaches. The "particularized ideology approach" would hold that fertility is influenced by value orientations and norms that are internalized as participants in a society or sub-society. The "minority relations approach" claims that the insecurities and

marginality associated with minority group status has an independent effect on fertility. The "reference group approach" looks at differences in the avenues for the transmission of family models; the various subgroups of a society may thus identify with different reference models.

There was not found to be an overwhelmingly large number of studies that addressed themselves to this specific issue of the relevance of ethnicity to fertility. Among studies of American fertility, there is generally little emphasis on ethnicity beyond the distinctions of native versus foreign birth and black versus white. There is more interest in religious differences which are generally found to persist after controls are made for other relevant factors. The Canadian literature on ethnic differentials was found to be more extensive but few studies introduce controls for basic socioeconomic factors. When controls are introduced, the differences would tend to decrease but some differences generally persist.

It is thus of interest to pursue the analysis of these fertility variations. Canada is a particularly rich field for such studies of the influence of social heritage on reproductive behaviour. We have at the same time a large amount of heterogeneity with respect to national origins and a statistical tradition by which this heterogeneity has been documented.

The data analyzed in this thesis are specific to the city of Edmonton. It might be noted that Edmonton presents even more variability than that typical of the average Canadian city; that is, there is a relatively large proportion of the population that is non-English

and non-French. The data under consideration derive from the Growth of Alberta Families Study (GAFS). This fertility survey involved interviews averaging one hour in length with 1,045 women aged 18 to 54 and living in the city of Edmonton. Stratified sampling was used to ensure that areas with a predominance of French, German, Polish and Ukrainian had higher chances of being selected. The interviews were taken between November 1973 and February 1974. The non-response rate amounted to approximately 29 percent of eligible women. It might also be noted that some 70 percent of the interviewed women were currently married while the mean age was 32 years.

The concept of ethnicity adopted was identical to that employed in recent Canadian censuses: "To what ethnic or cultural group did you or your ancestor (on the male side) belong on coming to this continent?". The main analysis is carried forward on the basis of the respondent's ethnicity. Given the sample sizes obtained, the eight following ethnic categories were used: British (English, Scottish, Welsh), German, French, Irish, Other Western European, Ukrainian, Other Eastern European and Other. The Polish group had initially been selected for special consideration but the survey yielded an insufficient number to merit detailed analysis.

The analysis focuses on two fertility measures: current family size and expected family size. The sample means on these variables were 1.7 and 2.7 children respectively. Current family size is simply the number of live births. Expected family size is the number of live births plus the additional births expected. This latter variable presents various measurement difficulties particularly

because it has been found to lack reliability on repeated interviewing. With the recent public focus on population questions, it has been suggested that expected fertility may be reflecting public opinion rather than long term changes in behaviour. For these reasons, current fertility receives the major emphasis in the thesis. The basic demographic variables of age and marital status naturally have considerable effect particularly on current family size. This effect has been systematically removed by measuring each woman's fertility as a deviation from the mean for her age and marital status. These measures have been called current family size "net age and marital status", and expected family size "net age and marital status".

The general procedure used in the thesis is to first establish ethnic fertility differentials (Chapter 2), then to determine whether or not they withstand three explanatory perspectives (Chapters 3, 4 and 5). These perspectives, as elaborated below, involve three sets of variables: background factors, assimilation factors and an economic model. The analysis involves various procedures for establishing whether or not these sets of variables can be held responsible for the observed ethnic fertility differences. Category means of current family size are presented by ethnic groups and by each of 21 control variables. Multiple Classification Analysis (MCA) is used to adjust the ethnic fertility deviations for the effect of these control variables considered separately. This MCA is also applied to adjust for the combined effect of each of the three sets of variables acting together. For those variables on which there is at least ordinal measurement, an additional procedure is applied. The variables

for each set of factors are introduced as independent variables in a multiple regression model which is applied separately to each ethnic group. The comparison of the resulting regression coefficients helps to determine whether similar factors have different effects in the various ethnic groups.

Through these controls, adjustments and comparisons of coefficients, we are thus able to determine whether or not the ethnic fertility differentials withstand the suggested explanatory perspectives. If the differentials are upheld, we are in a good position to conclude that ethnicity, as such, continues to make a difference. If the differentials are not upheld, we will have found an explanation for the initially observed differences.

The mean ethnic fertilities were given in Table 2.X Current family size ranged from 2.08 children for the French group to 1.49 for the British group; expected family size ranged from 3.23 to 2.51 children for the same groups. The adjustments for age and marital status did not greatly change this distribution. When fertility was measured as a deviation from the mean for respondent's age and marital status, the ranges were again of 0.6 and 0.7 children respectively on current and expected family size (net age and marital status) between the French and British groups. These differences are certainly not very large. However, compared to other basic fertility differentials that have recently been observed, they remain worthy of consideration. Differences of half a child or more certainly become significant in the context of the replacement of generations and population projections.

The variables considered in Chapter 3 consisted of a set of background factors. It is traditional in demography and sociology to first look at differences on the basis of such "face-sheet" variables as religion, residence and education. Much of the work in fertility differentials in fact does not go beyond the consideration of these basic background factors. This also provides a test of the "characteristics hypothesis"; we are attempting to determine the extent to which differences on the distributions along background factors can account for the observed ethnic fertility differences. The five following general variables were considered: religion, residence in youth (rural versus urban), education, occupation and income. The literature generally indicates a contraction of such standard differentials in recent years. In North America, Catholic fertility has remained higher than non-Catholic, and rural higher than urban fertility. The traditional inverse relation of fertility with education, occupation and income has recently undergone changes in the United States into u-shaped or even positive relations. In Canada, this change has occasionally been observed for occupation and income.

In the GAFS data, education, occupation and income were found to be more important than ethnicity as general explanatory variables while religion and residence in youth were found to be less important than ethnicity. Though the marginal differences on religion were small, controls for religion did produce a significant downward adjustment in the deviation of the French group. Education was the strongest variable; there was a mean difference of one child between respondents who had zero to eight years of education as contrasted with those who had some university. Education as well as occupation

and income had inverse relations with current fertility on the total of all ethnic groups. In general, adjustments for background factors were found to introduce only minor changes in the mean ethnic fertilities. The regression analysis also indicated that these factors had similar influences (in direction and size) within the various ethnic groups. Controlling for background factors occasionally reduced but generally did not eliminate differences among ethnicities. The general evidence presented thus provided very little support for the characteristics hypothesis. That is, ethnic deviations are not simply a reflection of differences due to general background factors.

Chapter 4 considered the influence of assimilation. The study of assimilation, or conversely of ethnic self-maintenance, presents a useful historical dimension to the analysis of ethnic differences. In North America, the foreign born have traditionally had higher fertility than the native born, but in the last 30 years the opposite situation has been prevalent. Some studies have looked at these variations as they apply to the various ethnic groups but virtually none have attempted to pursue the analysis through more detailed indices of assimilation. The study of assimilation also enables us to consider the "particularized ideology hypothesis". That is, we can determine whether the less assimilated are more extreme in the behaviour which is typical of their ethnic group.

Indices were developed to measure generation of Canadian residence, language use and intermarriage. The generation of Canadian residence is essentially an elaboration of the nativity variable. It is a measure of assimilation in as much as we can assume assimilation

to increase over time or over generations. The literature tends to give general but not complete support to this assumption. Language use has recently become a popular measure of assimilation in Canada. It is a relatively easy variable to measure and one can convincingly argue that it is central to the maintenance of ethnic boundaries. Intermarriage, or conversely, homogamy, is also a central measure of assimilation or amalgamation.

These measures were found to indicate a rather high level of assimilation in the sample under analysis. The average ranking on the assimilation variables gave the following high to low ordering on assimilation: Irish, British, French, Other Western European, German, Other, Other Eastern European and Ukrainian.

For the total of all ethnic groups, the association between assimilation variables and fertility was generally found to be lower than that between background factors and fertility. There were only small differences with respect to generation; the relation between respondent's generation and fertility tended to be curvilinear with highest fertility among the second generation women. Language use also indicated this curvilinear relation between assimilation and fertility. The homogamy variables indicated very small differences in the margin but their interaction effect with ethnicity was found to be significant. This was a substantial finding since homogamy (i.e. low intermarriage) might be expected to accentuate the fertility deviation that is typical of a given group. It was also found that when the analysis was limited to the subsample in which neither the

respondent nor her mother intermarried (28 percent of the sample), the association (Eta) between ethnicity and fertility emerged as the strongest encountered in the thesis. Marriage into British origins was found to have a depressing effect on fertility; controlling for this variable introduced relatively large adjustments in the ethnic deviations.

A more detailed investigation was made into the following "particularized ideology" hypothesis: if fertility is influenced by value orientations and norms that are specific to ethnic groups, then it may be expected that individuals who have retained a stronger link with their respective ethnic groups would also exhibit more extreme forms of the fertility behaviour that is associated with their group. Comparisons were made within each ethnic group between class means in fertility for the entire group and class means for the less assimilated members of that ethnic group. With some exceptions, it was in fact found that the less assimilated were more extreme in the deviation which was typical of their ethnicity.

The adjustments in ethnic fertilities, after controlling for assimilation variables, were found to be larger than equivalent adjustments for background factors. Thus differences in assimilation have more impact than differences in background factors on ethnic fertility differentials. However, adjustments did not always involve reductions in deviations so that the range of differences was not substantially changed. Or, stated differently, equal levels of assimilation would affect the rank ordering of ethnicities with respect to fertility but would not eliminate ethnic fertility differences.

The study of regression coefficients indicated considerable interaction between ethnicity and the assimilation variables in their effect on fertility. This interaction was evidenced by the high amount of variation among ethnic groups in the importance of the various assimilation variables to fertility and in the direction of their influence on fertility. The particularized ideology hypothesis would lead one to expect some form of differential impact or interaction since levels of assimilation are expected to affect that which is typical of a given group. Needless to say, that which is typical of a group will vary according to the groups involved. Thus the above mentioned differences among ethnicities in the way the assimilation variables affected fertility were interpreted as providing support for the particularized ideology hypothesis.

There has long been a general notion that economic factors play a somewhat central role in fertility decisions and consequent fertility behaviour. Based on this general notion, economists and demographers have developed what could be called an economic utility model for the explanation of fertility. This model would essentially claim that fertility decisions are arrived at through a consideration of relative preferences for children (as compared to other consumer goods), direct and indirect (opportunity) costs of children, and the couple's level of living. Various authors have attempted to employ models such as this in the context of studies of secular trends, long and short term cycles, aggregate and cross-sectional analyses. Given the model's popularity, one is tempted to determine whether or not it

is useful in the explanation of ethnic fertility differences. The economic model is thus brought into the present thesis (Chapter 5) for two reasons. First, to see if ethnic fertility differentials can be understood through ethnic differences on the variables of this economic model. Second, the model may be more applicable in certain groups than in others. That is, utility considerations may play a larger role in some groups while normative considerations may be more prevalent in other groups.

Since the economic model focuses on fertility as resulting from deliberate choices, the dependent variables were slightly changed to "current wanted family size" and "expected wanted family size". In addition, some authors tend justifiably to prefer desired family size for this type of analysis. Desired family size was therefore introduced as a third dependent variable.

For the total of all ethnic groups, there was found to be a u-shaped relation between level of living and fertility with lowest fertility at intermediate levels of living. The British were the only group indicating a positive relation between husband's income and fertility. Generalizations given below refer to the total of ethnic groups. Three indices were derived to measure the relative preferences for children. The first of these was ownership of high status items. Contrary to some earlier studies, we did not find the expected negative relation that would represent a trade-off between children and other consumer items. However, items reflecting an empahsis on the childbearing role, as contrasted with the work role, were found to be positively related to fertility. In addition, the proportion

of years worked since age sixteen was negatively related to fertility. Direct costs of children, measured as the extent of intended post-secondary support, were also negatively related to fertility. An index of indirect or opportunity costs was devised by measuring the implied work years lost through childbearing. The results, however, were generally contrary to the expected negative relation.

The MCA adjustments for these variables only introduced minor changes in the ethnic deviations. This was interpreted as indicating that ethnic fertility differences cannot be attributed to differences in the ethnic distributions on the variables of the economic model.

The explained variances in the regression analysis were higher than in the previous chapters; this indicated that the economic model is a more powerful explanatory tool than the selected sets of background or assimilation factors. The model was also found to apply better to the data on current and expected than desired family size. Though the signs of the relations were not all in the expected directions, this may have been partly due to problems of measurement. As recent proponents of the economic model have tended to expect, the adjusted relation between income and fertility varied within narrow limits around the measure of no association. The variables measuring relative preferences for children and direct costs of children were particularly consistent in showing the expected relations on the whole sample and in emerging as powerful explanatory variables. There was also considerable uniformity among ethnic groups in the signs and strengths of the regression coefficients. Thus the model applies

somewhat equally in the various groups. It was therefore concluded that the economic model could not be held responsible for the ethnic differentials under investigation.

In terminating this summary, a few results are presented to again capture the essence of the thesis. Table 6.1 presents the rank ordering of the eight ethnicities on current family size before adjustments and after the various adjustments made through the thesis. Columns 3, 4 and 5 of this table represent the results of the MCA analysis as applied to the sets of variables from Chapters 3, 4 and 5. It can be seen that the rank ordering of Column 2 (current family size net age and marital status) receives its largest changes through adjustments for assimilation variables (Column 4). Another way to appreciate these rankings is through Spearman's rank-order correlations. The following rho values were calculated on the basis of the distribution of ethnicities before and after adjustments:

	Current	Expected
No adjustments vs net age and marital status (Table 2.7)	0.45	0.88
Unadjusted deviations vs deviations adjusted for background factors (Table 3.10)	0.97	0.55
Unadjusted deviations vs deviations adjusted for assimilation factors (Tables 4.15 and 4.16, last sets of columns)	0.54	0.64
Unadjusted deviations vs deviations adjusted for variables of the economic model (Table 5.9)	0.86	0.85

Higher rho values naturally indicate few changes in the rank orderings. In current family size, the adjustment for age and marital status thus produces considerable change in the rankings. The adjustments for background factors and variables of the economic model leave them relatively unchanged. On the other hand, the adjustments for assimilation factors has a considerable effect. With expected family size,

Table 6.1 Rank orderings of ethnic groups by current family size before adjustments and after adjustments for various sets of factors.

		NET AGE AND MARITAL STATUS			
	No adjustments	Adjustments for age and m.s.	Adjustments for backg. factors	Adjustments for assim. factors	Adjustments for economic model
Rank	Table 2.7, col 1	Table 2.7, col 2	Table 3.10, col 3	Table 4.15, col 12	Table 5.9, col 3
	(1)	(2)	(3)	(4)	(5)
1	French	French	French	Irish	French
2	Ukrainian	Irish	Irish	British	German
3	Other W.E.	Other	Other	French	Irish
4	Irish	German	Other W.E.	Other W.E.	British
5	Other E.E.	Other W.E.	German	Other	Other W.E.
6	Other	Ukrainian	Other E.E.	German	Other E.E.
7	German	Other E.E.	Ukrainian	Other E.E.	Ukrainian
8	British	British	British	Ukrainian	Other

{ Indicates a tie.

the age and marital status adjustments are less significant but the adjustments for background factors are more significant.

In considering the MCA adjustments of current family size for each variable acting alone, notice was taken of changes of more than 0.05 children between the unadjusted and adjusted deviations for a given ethnic group. These larger adjustments can be summarized as follows:

Background factors:	4 adjustments	representing 8% of cases
Assimilation factors:	16 adjustments	representing 40% of cases
Economic variables:	4 adjustments	representing 7% of cases

Similarly, on tables adjusting for each set of variables acting together, notice was taken of adjustments involving more than 0.10 children. Taking both current and expected family size, these may be summarized as follows:

Background factors:	4 adjustments	representing 25% of cases
Assimilation factors:	9 adjustments	representing 56% of cases
Economic variables:	2 adjustments	representing 12% of cases

In studying the regression coefficients, we were mostly interested in the sign and strength of the relations. Considering only those variables where the coefficient on the total of the eight ethnic groups was significant (at the .05 level), the following summarizes situations where the sign for a given ethnicity was different from that for the total sample (both current and expected family size):

Background factors:	4 times	representing 12% of cases
Assimilation factors:	5 times	representing 17% of cases
Economic variables:	5 times	representing 10% of cases

It is more difficult to summarize the strengths of the regression coefficients. The two strongest variables from the total of all

groups were not the two strongest for a given ethnicity in the following:

Background factors:	8 occurences	which represents 25% of cases
Assimilation factors:	16 occurences	which represents 53% of cases
Economic variables:	11 occurences	which represents 34% of cases

These last measures are not strictly comparable across chapters since the regression models involved three background factors, five assimilation factors and six variables in the economic model.

These summary measures support the descriptive conclusions given above. That is, at least on background factors and variables of the economic model, the MCA adjustments are relatively minor and the regression models operate somewhat equally. Thus we are justified in saying that the ethnic fertility differences can generally not be attributed to the fact that the various groups have different distributions on the background factors nor on the variables of the economic model. On the assimilation variables the MCA adjustments are larger while the regression analysis indicates that the variables operate somewhat differently in the various groups. This is interpreted to imply that the assimilation factors are more relevant to the explanation of ethnic differentials. There was evidence indicating that these assimilation factors tend to interact with ethnicity so that lower levels of assimilation accentuate the fertility behaviour that is typical of a given ethnic group. On the other hand, ethnic differences are still encountered in the highly assimilated women.

The general conclusion of the thesis is that ethnic differentials are remarkably hearty. That is, they do not submit to any simple explanation and generally remain largely unchanged after con-

trolling for various relevant factors. Though the differences are not astounding in their dimensions, they tend to endure despite similarities in other characteristics and to be surprisingly resistant to assimilation processes.

6.2 Broader relevance of the thesis

This study thus provides an additional documentation of the importance of ethnicity in contemporary North American society. Historically, ethnic groups are the constituent groups of Canadian society and they remain part of the basic structure of the society. At the individual level, Shills (1957: 142) may be correct in claiming that "a certain ineffable significance is attributed to the tie of blood". Though the forces of assimilation are strong, they are not at all as strong as many authors have been led to believe. Particularly in a modern society, immigrants do not just come and settle into a monolithic group. There is instead continual mobility so that the kin and ethnic ties may be some of the few enduring features in the individual's social interaction. The simple fact of living in a moderately large city does not imply that individuals become independent of the influence of their social heritage and of their ethnic group. Though wider social influences certainly have their levelling effect, it is still in the family and in kinship related contacts that the individual acquires many of the attitudes, values and norms which will affect his or her behaviour. Pineo (1968) has documented this type of frequent kin contact in a sample of residents of a working class area of Hamilton. In as much as family size is influenced by attitudes and norms which are acquired through these kin and ethnic contacts, it can be expected that variations among groups will be retained. One

can thus argue that ethnic groups do in fact present a basis for differential fertility. As Lorimer (1954) has generalized, the wish for offspring is an acquired motive which is constantly being reinforced by social rewards and punishments. This reward system may be further related both to general social goals and to goals which are specific to given subgroups. Freedman (1961-62: 41) in fact suggested a model which "specifies that the fertility of any collectivity tends to correspond with a level prescribed by the social norms which are in turn an adjustment to the way in which varying numbers affect the achievement of socially valued objectives".

While the ethnic fertility differentials that have been encountered here are not particularly large, they are in the order of the range proposed by Statistics Canada to cover the probable fertility levels into the late seventies and early eighties. The high and low fertility assumptions used in these projections are in fact of 1.80 and 2.60 births per woman (Canada, Statistics Canada, 1974: 29). Though further analysis would be required for other ethnic groups, the types of ethnic differences encountered in this thesis could usefully be employed to refine population projections.

This type of analysis may also be relevant to immigration policies. The particular groups studied here are not those which are currently contributing substantial numbers to Canadian immigration. But, in general, immigration policies might fruitfully consider not only the population growth which is consequent of the immigrants themselves, but also the (differential) growth which these immigrants will contribute through further fertility. In as much as immigration

policy also concerns itself with the composition of the Canadian population, it should take into account not only the differential growth potential of various groups but also their assimilation or ethnic maintenance as it makes itself felt over generations. As regards policies relating to fertility per se, this study would emphasize that there are certain determinants over which the larger society has little influence. Other determinants, particularly education and the labour force status of women, would be areas in which policies might be developed with a more specific orientation to their consequent fertility effect.

On the other hand, one must not exaggerate the importance nor relevance of this study. For one thing, it is limited to Edmonton so generalizations beyond this city must either assume similar circumstances or similar relations among factors. We are also plagued by various problems which are general to fertility studies. For instance, most of the fertility variation is now within a narrow range; therefore there is difficulty in predicting the small variation that remains among individual couples. Added to this difficulty, there is the methodological problem of the random component in individual responses. Through a re-interview of 440 women three months after the original survey, Ryder and Westoff (1971: 363) found that the median proportion of inconsistent responses was 25 percent for behavioural variables and 50 percent for attitudinal variables. These types of inconsistencies certainly contribute to the low correlations observed in fertility studies that focus on the determinants of individual behaviour (idem, p. 365).

In spite of these limitations, the present thesis makes a basic contribution both to the analysis of differential fertility and to the study of ethnic maintenance. Regarding differential fertility, we have documented that variations in social origins remain important in spite of similarities in other life situations. Ethnic fertility differentials are not completely accounted for by differences in background factors, assimilation factors, or variables of the economic model. In addition, the consideration of assimilation has indicated that the less assimilated tend to be more extreme in the behaviour that is typical of their ethnic group. Regarding the study of ethnicity, we have shown that ethnic origins continue to exercise a discriminating influence even in a modern urban society. Such factors as education and income may have their levelling effect, but social heritage retains an impact on individual behaviour.

6.3 Suggestions for further research

It may be worth referring to a few alternative approaches that the author would consider to be potentially fruitful areas for further research. Breton (1961) has studied the institutional completeness of ethnic communities and found it to be an important factor influencing the social integration of immigrants in Montreal. By institutional completeness he refers to such factors as the number of churches, welfare organizations and newspapers that service the ethnic community. Besides these aggregate measures, items such as the following could be used to analyze the extent to which given individuals are under the influence of the ethnic groups: interaction patterns, kin contact, media exposure and institutional affiliations. These approaches would enable one to better appreciate the circum-

stances in which ethnicity is important and the manner in which it operates as a causal factor. Another potential topic would be to relate fertility differences in Canada to differences among the countries of origin. Heer (1961) has undertaken this type of analysis with respect to the marital status of second generation Americans. On the other hand, immigrants are not a random sample of the populations at places of origin. It may be more relevant to study the various groups in relation to their specific historical and contemporary circumstances in the country of destination. The ethnic group can undergo considerable change depending on the particular context in which it evolves. It might therefore be interesting to analyze differences in the fertilities of members of the same ethnic group but in different contexts. These types of approaches might hopefully also lead to a fuller understanding of the relevance and durability of the ethnic component in modern society.

FOOTNOTES

Chapter 1:

1) Sources of data:
Canada and Alberta: Canada, Statistics Canada, 1973: 23-1
Edmonton, 1971: Canada, Statistics Canada, 1973: 26-2 (Core Area)
Edmonton, 1961: Canada, D.B.S., 1965: 126 (Edmonton Area)

Chapter 2:

1) Data on households are weighted simply by the weight of the enumeration area. The number of eligible women does not enter into this weight because it is already an aspect of the household.

2) As can be seen from the questionnaire, the questions on live births (QQ 31, 32, 33) were designed to be skipped in the cases when the respondent was single and the interview also included a mail-back questionnaire or the administrating of the random response technique. One third of interviews were coupled with a mail-back questionnaire covering sensitive questions, another third involved an additional random response questionnaire on the same questions while in the last third of cases these sensitive questions were simply asked in the course of the regular interview. There is evidence that the interviewers failed to adopt the skip pattern regarding live births in the case of single women. Live births to single women were in fact more often reported in conjunction with mail-back or random response technique (i.e. when these questions should have been skipped) than when the questions were designed to be asked. It was thus decided to omit this particular skip pattern from the analysis and to take seriously the number of children reported through QQ 31, 32 and 33.

Chapter 3:

1) It was also found that religiousness (as measured by church attendence) had only a weak influence. However, a pattern similar to that located in the United States but different from that of the Toronto sample is found in this sample: high values of religiousness are associated with lower fertility for Protestants and higher fertility for Catholics (table not presented).

2) It may also be of interest to note that those respondents who had different size-places of residence "in youth" as compared to "before Edmonton" had fertility as low as those who indicated urban residence on both questions. Thus when these are removed, the people who indicated rural or town residence on both questions have higher fertility than that presented in Table 3.3. However, the differences remain small.

3) It could be noted that there was very little fertility variation associated with husband's occupation. The blue collar group had 0.22 more children than the white collar group (table not presented).

4) For current family size the explained sum of squares is 13,184.56 with religion, residence in youth, occupation and income in the model. This explained sum of squares is increased to 14,520.53 when ethnicity is added to the model. Similarly, the figures are 12,797.29 and 14,071.71 for expected family size.

Chapter 4:

1) The index of homogamy is the same as phi, it is calculated through the following formula:

$$\frac{(AB)\ (ab) - (Ab)\ (aB)}{\sqrt{(A)\ (B)\ (a)\ (b)}}$$

Where (AB) = say, English grooms marrying English brides
(Ab) = English grooms marrying non-English brides
(aB) = non-English grooms marrying English brides
(ab) = non-English grooms marrying non-English brides
A = total English grooms
B = total English brides
a = total non-English grooms
b = total non-English brides.

2) It is interesting that the 40 foreign born respondents who immigrated to Canada before the age of 12 had a mean fertility (0.02) closer to the second generation (0.04) than to those who immigrated at age 12 or more (-0.16). Similar results occur when husbands are used as the point of comparison (these tables are not presented). This tends to provide an ex post facto justification for the use (suggested by Price and Zubrzycki, 1962) of an age-dependent cutting point rather than simple nativity in separating the generations.

3) Since the "English-speaking" ethnicities (British, Irish, "Canadian", "United States", Australian and New Zealand) are by definition highly assimilated according to these measures, it is useful to remove them from the comparison. Repeating the analysis on the resulting subsample changes the marginal in the first column of each of Tables 4.10 and 4.11 from -0.11 to -0.04. Thus the shapes of the relations are unchanged while the negative differential associated with high assimilation is reduced. It will be recalled that these tables refer to the language corresponding to the ethnicity of either of the respondent's parents (that is, she can speak at least one of these languages). Essentially identical marginal results are obtained when one uses only the father's ethnicity or only the mother's ethnicity (tables not presented).

4) These grand means are as follows:

Table 4.8:	-0.03
Table 4.9:	0.08
Table 4.11:	-0.03
Table 4.12:	-0.02
Table 4.13:	0.07
Table 4.14:	0.07

5) With current family size as dependent variable, the explained sum of squares increases from 5844.19 to 8225.79 when ethnicity is added to the model (N = 778).

6) With expected family size as dependent variable, the explained sum of squares increases from 6556.15 to 10,518.68 when ethnicity is added to the model (N = 741).

Chapter 5:

1) Later in the discussion we will bring in the contrast between the normative and economic approaches to the understanding of fertility. Rainwater could be said to be using both explanations here since he suggests a norm but the norm takes its point of reference in economic parameters.

2) Fawcett and Arnold (1973) describe a research project which is attempting to determine the "value of children" in six countries.

3) Some authors, for instance Easterlin (1969: 132), suggest that norms can be introduced in the model as tastes, or that social norms are the conceptual embodiment of preferences. But this author would tend to side with Ryder's (1973b) claim that these notions are not equivalent since norms are social while tastes are individual.

4) It was originally thought that two other items could provide useful inter-utility comparisons. These items derived from the following questions: "Q74, Q93. Would you have more children if day care services were inexpensive and readily available?"; "Q75, Q94. Would you have more children if your annual income was increased by $2,000 (that is without a raise in taxes or increased working hours)?". However, these questions were only asked of women who were fecund and who indicated that they did not want more children (N = 214). The questions are not used here because they were answered in the affirmative by only 10 and 15 respondents respectively.

5) Eliminating the non-currently married from the analysis does not change the curvilinear relationship between ownership of status items and fertility (table not presented).

6) When the four items that went into this measure of childbearing role are considered separately, the same marginal relation emerges in each case (tables not presented).

7) The curvilinear relation between ownership of status items and fertility was also generally maintained after MCA adjustments either for all other factors or only for income (tables not presented).

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APPENDIX A

CALCULATION OF EXPECTED FAMILY SIZE

The 15 following questions are employed in the calculation of expected family size: QQ 1, 10, 29, 30, 31, 32, 33, 70, 72, 82, 85, 86, 89, 91, 105. See Appendix C for the wording of the questions. There are ten possible ways in which expected family size is derived from the answers to these questions. Only one of the calculations is made for a given respondent. These alternatives are given below in the same order as they are checked in the computer program.

STEPS 1 – 4 ARE SKIPPED IF THE RESPONDENT IS OR HAS EVER BEEN PREGRANT (Q 29).

1. Respondent wants no children eventually (Q 30): expected family size is current family size (Q 31 – Q 33).

2. Respondent does not know if she wants children eventually (Q 30): expected family size is coded as missing data.

3. Respondent wants children eventually (Q 30) and her year of birth is since 1932 (Q 1): expected family size is taken from Q 105.

4. Respondent wants children eventually (Q 30) and her year of birth is 1932 or earlier (Q 1): expected family size is current family size (Q 31 – Q 33).

5. Respondent is pregnant (Q 70 is answered): expected family size is one plus current family size (Q 31 – Q 33) plus additional expected (Q 72).

6. When there is indication that respondent or husband cannot have more children (Q 82, 85, 86): expected family size is current family size (Q 31 – Q 33).

7. When marital status (Q 10) is single, separated, widowed or divorced and year of birth is since 1932 (Q 1): expected family size is taken from Q 105.

8. When marital status (Q 10) is single, separated, widowed or divorced and year of birth is 1932 or earlier (Q 1): expected family size is current family size.

9. When respondent wants no additional children (Q 89): expected family size is current family size (Q 31 – Q 33).

10. When respondent wants additional children (Q 89): expected family size is current family size plus additional expected (Q 91).

APPENDIX B

SUMMARY TABLES OF ANALYSIS OF VARIANCE

This appendix presents two-way analysis of variance between ethnicity and each of the other independent variables in the thesis. The dependent variable is current family size (net age and marital status). Such tests of significance are not completely justified since the data are weighted and originate from cluster sampling. However, the error degrees of freedom go into the infinity row of the F distribution tables. Thus the error introduced by these departures from independent sample points should not disqualify the results.

Since no computer program was located that would do this analysis with weighted data, the procedure involved the creation of dummy variables for the categories of the independent variables and for each of the interaction terms.[1] This requires $(j - 1)$ and $(i - 1)$ (where j and i are the number of categories for each of the variables) dummy variables for the main effects plus $(j - 1)$ $(i - 1)$ dummy variables for the interaction terms. With a four category variable such as education, this requires seven dummy variables for ethnicity, three for education and 21 for the interaction. Three standard regression runs are then made: with all terms in the model, with only the main effects (ethnicity and say education) in the model, and with only education in the model. The three resulting R^2's are multiplied by the total sum of squares (TSS) to obtain three explained sum of squares (SS). The SS due to interaction is then obtained by subtracting the SS when only the main effects are in the model from the SS when all terms are included. The SS attributed uniquely to ethnicity is the SS with both main effects in the model minus the SS with only education in the model. Finally, the SS due to education is simply the SS with only that variable in the model.

Stated algebraically,

Model 1: $\hat{Y} = u + \alpha_i + B_j + \gamma_{ij}$

Model 2: $\hat{Y} = u + \alpha_i + B_j$

Model 3: $\hat{Y} = u + \alpha_i$

Where α is an independent variable "say" education
B is ethnicity
is the interaction
u is a constant term
γ is the interaction

1) The author is indebted to John Fox for the elaboration of the procedure under discussion.

The SS associated with these models are:

$$SS_1 = TSS\ (R_1^2)$$

$$SS_2 = TSS\ (R_2^2)$$

$$SS_3 = TSS\ (R_3^2)$$

where SS_i is the explained sum of squares in model i

TSS is the total sum of squares

R_i^2 is the square of the multiple correlation coefficient for model i

The analysis of variance SS are now:

SS due to error: $SSE = TSS\ (1 - R_1^2)$

SS due to interaction: $SSAB = SS_1 - SS_2$

SS due uniquely to ethnicity: $SSB = SS_2 - SS_3$

SS due to education: $SSA = SS_3$

It is important to note that the SS attributed to ethnicity in the following tables is that due uniquely to ethnicity (i.e. after removing the SS due to the other variable under consideration).

Table B.1 Summary table of analysis of variance with ethnicity, respondent's religion and current family size (net age and marital status).

Source of variance	S.S. (1)	D.F. (2)	M.S. (3)	F (4)	D.F. (5)
A (Religion)	20.7432	2	10.3716	5.63***	2,991
B (Ethnicity)	15.1825	7	2.1689	1.18!	7,991
AB	34.8060	14	2.4861	1.35!	14,991
Error	1827.0865	991	1.8437		

! Not significant.

*** Significant at .01 level.

Table B.2 Summary table of analysis of variance with ethnicity, respondent's residence in youth and current family size (net age and marital status)

Source of variance	S.S. (1)	D.F. (2)	M.S. (3)	F (4)	D.F. (5)
A (Residence)	7.1230	2	3.5615	1.91!	2,972
B (Ethnicity)	23.6184	7	3.3741	1.81*	7,972
AB	34.1716	14	2.4408	1.31!	14,972
Error	1809.5610	972	1.8617		

! Not significant.

* Significant at .10 level.

Table B.3 Summary table of analysis of variance with ethnicity, respondent's education and current family size (net age and marital status).

Source of variance	S.S. (1)	D.F. (2)	M.S. (3)	F (4)	D.F. (5)
A (R's Education)	85.8814	3	28.6271	16.17***	3,982
B (Ethnicity)	18.5981	7	2.6569	1.50!	7,982
AB	52.5147	21	2.5007	1.41*	21,982
Error	1738.8415	982	1.7707		

! Not significant.

*** Significant at .01 level.

* Significant at .10 level.

Table B.4 Summary table of analysis of variance with ethnicity, husband's education and current family size (net age and marital status).

Source of variance	S.S. (1)	D.F. (2)	M.S. (3)	F (4)	D.F. (5)
A (H's Education	51.8165	3	17.2722	8.48***	3,810
B (Ethnicity)	30.8431	7	4.4062	2.16**	7,810
AB	81.1537	21	3.8645	1.90***	21,810
Error	1650.4884	810	2.0376		

** Significant at .05 level.

*** Significant at .01 level.

Table B.5 Summary table of analysis of variance with ethnicity, respondent's last occupation and current family size (net age and marital status).

Source of variance	S.S. (1)	D.F. (2)	M.S. (3)	F (4)	D.F. (5)
A (Occupation)	56.9151	3	18.9717	10.55***	3,983
B (Ethnicity)	22.7168	7	3.2453	1.80*	7,983
AB	49.8178	21	2.3723	1.32!	21,983
Error	1768.3680	983	1.7990		

! Not significant.

* Significant at .10 level.

*** Significant at .01 level.

Table B.6 Summary table of analysis of variance with ethnicity, respondent's income and current family size (net age and marital status).

Source of variance	S.S. (1)	D.F. (2)	M.S. (3)	F (4)	D.F. (5)
A (R's income)	52.2090	3	17.4030	9.65***	3,983
B (Ethnicity)	28.4103	7	4.0586	2.25**	7,983
AB	44.0294	21	2.0966	1.16!	21,983
Error	1773.1694	983	1.8038		

! Not significant.

** Significant at .05 level.

*** Significant at .01 level.

Table B.7 Summary table of analysis of variance with ethnicity, family income and current family size (net age and marital status).

Source of variance	S.S. (1)	D.F. (2)	M.S. (3)	F (4)	D.F. (5)
A (Family income)	52.3952	3	17.4651	8.72***	3,678
B (Ethnicity)	14.9086	7	2.1298	1.06!	7,678
AB	57.8099	21	2.7529	1.37!	21,678
Error	1358.3302	678	2.0034		

! Not significant.

*** Significant at .01 level.

Table B.8 Summary table of analysis of variance with ethnicity, generation of Canadian residence of respondent and current family size (net age and marital status).

Source of variance	S.S. (1)	D.F. (2)	M.S. (3)	F (4)	D.F. (5)
A (Generation)	4.3565	2	2.1782	1.16!	2,981
B (Ethnicity)	26.2520	7	3.7503	1.99*	7,981
AB	8.7130	14	0.6224	0.33!	14,981
Error	1846.5995	981	1.8824		

! Not significant.

* Significant at .10 level.

Table B.9 Summary table of analysis of variance with ethnicity, generation of Canadian residence of respondent's husband and current family size (net age and marital status).

Source of variance	S.S.	D.F.	M.S.	F	D.F.
	(1)	(2)	(3)	(4)	(5)
A (H's generation)	10.2107	2	5.1054	2.35*	2,800
B (Ethnicity)	31.0479	7	4.4354	2.05**	7,800
AB	31.5359	14	2.2526	1.04!	14,800
Error	1734.4166	800	2.1680		

! Not significant.

* Significant at .10 level.

** Significant at .05 level.

Table B.10 Summary table of analysis of variance with ethnicity, language spoken at home and current family size (net age and marital status).

Source of variance	S.S.	D.F.	M.S.	F	D.F.
	(1)	(2)	(3)	(4)	(5)
A (Language spoken)	33.5303	2	16.7642	8.96***	2,983
B (Ethnicity)	18.8088	7	2.6870	1.44!	7,983
AB	singular matrix	14			14,983
Error	1839.8918	983	1.8717		

! Not significant.

*** Significant at .01 level.

Table B.11 Summary table of analysis of variance with ethnicity, ability to converse in ethnic language and current family size (net age and marital status).

Source of variance	S.S. (1)	D.F. (2)	M.S. (3)	F (4)	D.F. (5)
A (Ability to converse)	18.7504	1	18.7504	10.09***	1,999
B (Ethnicity)	17.0045	7	2.4292	1.31!	7,999
AB	6.3007	7	0.9001	0.48!	7,999
Error	1855.7625	999	1.8576		

! Not significant.

*** Significant at .01 level.

Table B.12 Summary table of analysis of variance with ethnicity, homogamy of respondent's parents and current family size (net age and marital status).

Source of variance	S.S. (1)	D.F. (2)	M.S. (3)	F (4)	D.F. (5)
A (Homogamy)	0.0187	1	0.0187	0.01!	1,971
B (Ethnicity)	24.8545	7	3.5506	1.91*	7,971
AB	34.1166	7	4.8738	2.62**	7,971
Error	1808.3674	971	1.8624		

! Not significant.

* Significant at .10 level.

** Significant at .05 level.

Table B.13 Summary table of analysis of variance with ethnicity, homogamy over two generations and current family size (net age and marital status).

Source of variance	S.S. (1)	D.F. (2)	M.S. (3)	F (4)	D.F. (5)
A (Homogamy)	2.3436	2	1.1718	0.55!	2,772
B (Ethnicity)	27.4527	7	3.9218	1.84*	7,772
AB	89.8160	14	6.4154	3.02***	14,772
Error	1642.5012	772	2.1276		

! Not significant.

* Significant at .10 level.

*** Significant at .01 level.

Table B.14 Summary table of analysis of variance with ethnicity, marriage into British origins and current family size (net age and marital status).

Source of variance	S.S. (1)	D.F. (2)	M.S. (3)	F (4)	D.F. (5)
A (Marriage to British	24.8458	1	24.8458	11.34***	1,785
B (Ethnicity)	17.8502	7	2.5505	1.16!	7,785
AB	singular matrix	7			7,785
Error	1719.4175	785	2.1903		

! Not significant.

*** Significant at .01 level.

Table B.15 Summary table of analysis of variance with ethnicity, husband's income in 1973 and current wanted family size (net age and marital status).

Source of variance	S.S. (1)	D.F. (2)	M.S. (3)	F (4)	D.F. (5)
A (H's income)	7.5855	3	2.5285	1.28!	3,678
B (Ethnicity)	20.9164	7	2,9881	1.52!	7,678
AB	41.1586	21	1.9599	1.00!	21,678
Error	1335.0681	678	1.9691		

! Not significant.

Table B.16 Summary table of analysis of variance with ethnicity, financial success and current wanted family size (net age and marital status).

Source of variance	S.S. (1)	D.F. (2)	M.S. (3)	F (4)	D.F. (5)
A (Fin. success)	50.6862	2	25.3431	13.28***	2,749
B (Ethnicity)	16.5537	7	2.3648	1.24!	7,749
AB	32.8933	14	2.3495	1.23!	14,749
Error	1429.7856	749	1.9089		

! Not significant.

*** Significant at .01 level.

Table B.17 Summary table of analysis of variance with ethnicity, ownership of high status items and current wanted family size (net age and marital status).

Source of variance	S.S. (1)	D.F. (2)	M.S. (3)	F (4)	D.F. (5)
A (Ownership)	8.0323	3	2.6774	1.65!	3,958
B (Ethnicity)	16.2579	7	2.3226	1.43!	7,958
AB	32.8858	21	1.5660	0.97!	21,958
Error	1552.5096	958	1.6206		

! Not significant.

Table B.18 Summary table of analysis of variance with ethnicity, childbearing role and current wanted family size (net age and marital status).

Source of variance	S.S. (1)	D.F. (2)	M.S. (3)	F (4)	D.F. (5)
A (Childbearing)	62.5322	2	31.2661	19.26***	2,988
B (Ethnicity)	14.5116	7	2.0731	1.28!	7,988
AB	18.4878	14	1.3206	0.81!	14,988
Error	1603.7134	988	1.6232		

! Not significant.

*** Significant at .01 level.

Table B.19 Summary table of analysis of variance with ethnicity, proportion of years worked since age sixteen and current wanted family size (net age and marital status).

Source of variance	S.S. (1)	D.F. (2)	M.S. (3)	F (4)	D.F. (5)
A (Years worked)	116.0764	3	38.6921	24.82***	3,983
B (Ethnicity)	15.7003	7	2.2429	1.44!	7,983
AB	36.5715	21	1.7415	1.12!	21,983
Error	1532.6542	983	1.5592		

! Not significant.

*** Significant at .01 level.

Table B.20 Summary table of analysis of variance with ethnicity, extent of intended post-secondary support and current wanted family size (net age and marital status).

Source of variance	S.S. (1)	D.F. (2)	M.S. (3)	F (4)	D.F. (5)
A (Support)	27.3075	2	13.6538	8.45***	2,892
B (Ethnicity)	26.9871	7	3.8553	2.39**	7,892
AB	29.9619	14	2.1401	1.32!	14,892
Error	1441.3001	892	1.6158		

! Not significant.

** Significant at the .05 level.

*** Significant at the .01 level.

Table B.21 Summary table of analysis of variance with ethnicity, implied work years lost through childbearing and current wanted family size (net age and marital status).

Source of variance	S.S. (1)	D.F. (2)	M.S. (3)	F (4)	D.F. (5)
A (Years lost)	7.5914	3	2.5305	1.53!	3,821
B (Ethnicity)	7.9556	7	1.1365	0.69!	7,821
AB	28.8390	21	1.3733	0.83!	21,821
Error	1356.2460	821	1.6519		

! Not significant.

APPENDIX C

THE GAFS QUESTIONNAIRE

THE GROWTH OF ALBERTA FAMILIES STUDY

POPULATION RESEARCH LABORATORY

THE UNIVERSITY OF ALBERTA

Address: _____

_____

Sample Number: ___ - ___ - __ - __ - __
E.D. E.A. No. FA MH

Is this address live? _____
Or dead? _____

How many Households are there at this address? _____

Time: Entered household: _____

Begin interview: _____

Next Address: _____

_____

Is the next address reasonable:

_____

(If not, record details on back page under COMMENTS.)

How many Found Addresses are there?

_____

HOUSEHOLD LIST:

	First Name	Relationship	Age	Sex	Marital Status	Mother Alive	Father Alive	Eligibility	Selection No. *
1				M F	NM M S D W	Y N	Y N		
2				M F	NM M S D W	Y N	Y N		
3				M F	NM M S D W	Y N	Y N		
4				M F	NM M S D W	Y N	Y N		
5				M F	NM M S D W	Y N	Y N		
6				M F	NM M S D W	Y N	Y N		
7				M F	NM M S D W	Y N	Y N		
8				M F	NM M S D W	Y N	Y N		
9				M F	NM M S D W	Y N	Y N		
10				M F	NM M S D W	Y N	Y N		

* CIRCLE THE SELECTED NUMBER

Selection Table Number _____

Type: only long form 1
mail-back 2
Random response 3

"First of all I would like to ask you some questions about your background".

ALL RESPONDENTS

1. In what year were you born? _____

2. What province or country were you born in?

01 Nfld.	05 Que.	09 Alta.	
02 P.E.I.	06 Ont.	10 B.C.	
03 N.S.	07 Man.	11 Yukon	
04 N.B.	08 Sask.	12 N.W.T.	SKIP TO Q 4
13 U.K.	16 Poland	19 France	
14 Germ.	17 Ireland	20 Ukraine	
15 Italy	18 U.S.A.		

Other _____(specify)

3. In what year did you first immigrate to Canada? 19_____

4. Were your parents born in Canada?

1. Both were 3. Mother only
2. Neither were 4. Father only

5. How long have you lived in Edmonton? SKIP TO Q8 - - - - All life ___ # of yrs._____

6. Just before you moved to Edmonton did you live in a

Rural community or farm	1
Town	2
City	3

7. Where did you live most of the time while you were growing up (Say up to age 12)? In a

Rural community or farm	1
Town	2
City	3

8. How many sons and daughters did your parents have? IF ONE SKIP TO Q 10 - - - - Sons_____ - - - - Daughters 1+_____

9. Were you the oldest, second oldest...? _____

10. What is your present marital status? (READ CATEGORIES)

1. Single
2. Separated
3. Widowed
4. Married or living with someone
5. Divorced

IF 4, CIRCLE APPROPRIATE CATEGORY

11. Have you ever been gainfully employed?

SKIP TO Q 13 - - - - - - - - -

Yes 1
No 2

12. I would like to make a list of all the regular jobs that you have held and that have lasted more than six months.

Job no.	(i) What kind of job was it?	(ii) What date did you begin? What date did you leave? * FROM month	FROM year	TO month	TO year	SPACE RESERVED FOR CODING	(iii) Was it full time or part-time?
1							FT PT
2							FT PT
3							FT PT
4							FT PT
5							FT PT
6							FT PT
7							FT PT
8							FT PT
9							FT PT
10							FT PT
11							FT PT

* IF RESPONDENT UNABLE TO RECALL DATES ASK THE DURATION OF THE JOB AND RECORD IT

CONTINUE OVERLEAF IF NECESSARY

SKIP TO Q 14 IF R CURRENTLY WORKING

13. Are you now:

Other _____(specify)

a housewife 1
a student 2
unemployed 3
an unpaid family worker 4

14. Would you prefer:

to be working now 1
or not working 2
no preference 3

15. Suppose a woman is offered a good job and can arrange to have her children cared for adequately, what age should her youngest child be before she takes the job on a full time basis?

Age _____

16. What age should her child be before she takes the job on a part time basis?

Age _____

17. What is the highest grade or year of elementary or secondary school you ever attended?

SKIP TO Q 19 - - -

None 0
Yr or Grade 1 2 3 4 5
6 7 8 9 10
11 12 13

18. How many years of schooling have you had since (elementary or secondary) school?

University 0 1 2 3 4 5 6 +
Other 0 1 2 3 +

19. What is the main source from which you usually learn of national and world news? (READ CATEGORIES)

1. T.V.
2. Newspaper
3. Radio
4. Friends
5. Magazines

Other _____(specify)

20. Which do you consider most trustworthy? (use previous codes or specify other) One choice only.

_____

_____

21. What is your religion or denomination?

01 Anglican	07 Pentecostal
02 Baptist	08 Presbyterian
03 Greek Orthodox	09 Roman Catholic
04 Jewish	10 Salvation Army
05 Lutheran	11 Ukrainian Catholic
06 Mennonite	12 United Church
00 None Other _____(specify)	

IF NONE SKIP TO Q 23

22. In the last month how often did you attend religious services (other than weddings, funerals, etc.)? # of times _____

23. To what ethnic or cultural group did you or your ancestor (on the male side) belong on coming to this continent?

01 English	08 Native Indian Non-Band
02 French	09 Netherlands
03 German	10 Norwegian
04 Irish	11 Polish
05 Italian	12 Scottish
06 Jewish	13 Ukrainian
07 Native Indian Band	

Other (specify) _____

24. Was your mother of the same ethnic or cultural group? Yes 1 No 2

If not, of which group was she? _____

25. What language do you speak at home now?

01 English	06 Hungarian
02 French	07 Dutch
03 German	08 Polish
04 Indian	09 Ukrainian
05 Italian	10 Yiddish

Other (specify) _____

26. In what other languages can you converse (use above coding and/or specify other) _____

_____

"The next group of questions deals with the children you have or might like to have"

27. First of all, have you ever adopted any children or do you have any step children?

SKIP TO INSTRUCTIONS PRECEEDING Q 29	Yes	1
	No	2

28. What were (his/her/their) age(s) on (his/her/their) last birthday? _____

NOTE: IF THE RESPONDENT IS SINGLE, AND WHEN MAIL-BACK OR RANDOM RESPONSE QUESTIONNAIRE IS USED SKIP TO Q 30

29. Are you or have you ever been pregnant?

SKIP TO Q 31	Yes	1
	No	2

IF R HASN'T ADOPTED CHILDREN AND HAS NEVER BEEN PREGNANT ASK:

30. Do you want to have children eventually?

SKIP TO Q 105	Yes	1
SKIP TO Q 113	No	2
SKIP TO Q 113	Don't know	3

31. How many children of your own - those that you have actually borne - now live with you in your own household? _____

32. How many of your children now live somewhere else? _____

33. How many of your own children have died? _____

IF RESPONDENT HAS NO LIVING CHILDREN, GO TO Q 54

"I want to make a list of the names of all these children, in order from eldest to youngest whether they now live with you or somewhere else."

CHILD LIST		ELDEST				YOUNGEST
34. What is the name of your (eldest--) child?						
35. (If not obvious) Is that a girl or a boy?		M F	M F	M F	M F	M F
36. In what month and year was he/she born?		TS	TS	TS	TS	TS
37. How old was he/she on his/her last birthday?		Yrs.	Yrs.	Yrs.	Yrs.	Yrs.
38. How much did he/she weigh at birth?						
	CODES					
39. What was the length of pregnancy?						
	CODES					
40. Would you have preferred this child 1. Earlier 2. Later 3. Same time 4. Not at all.		1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
41. Would your husband/partner have preferred this child 1. Earlier 2. Later 3. Same time 4. Not at all.		1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
42. Did you breast feed him/her?		Y N	Y N	Y N	Y N	Y N
43. IF YES: to Q 42 For how many months?						
44. Did you smoke during the pregnancy?		Y N	Y N	Y N	Y N	Y N
45. Did you become pregnant while using some method of birth control?		Y N	Y N	Y N	Y N	Y N
46. IF YES: to Q 45 What method of birth control? SKIP TO Q 49						
47. IF NO: to Q 45 Did you stop using a method to become pregnant?		Y N	Y N	Y N	Y N	Y N
48. IF YES: to Q 47 How many months did it take to become pregnant after you had stopped?		Mons.	Mons.	Mons.	Mons.	Mons.
49. Is that child living with you now?		Y N	Y N	Y N	Y N	Y N
50. Was there any time you were pregnant before the pregnancy resulting in (name of the eldest)? How many times?		Y N #				
51. Was there any time you were pregnant between ____ and ____? (Ask of each successive pregnancy.) How many times?			Y N #	Y N #	Y N #	Y N #
52. Was there any time you were pregnant since the birth of _____ (name of youngest)? How many times?						Y N #

IF NO OTHER PREGNANCIES SKIP TO Q 60

53. TOTAL OF OTHER PREGNANCIES _____

"Now I would like to ask detailed questions about each of these other pregnancies."

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IF RESPONDENT HAS NO LIVE CHILDREN, ASK Q 54. IF R HAS LIVE CHILDREN SKIP TO Q 55.

54. How many times have you been pregnant? _____

		LIST OF OTHER PREGNANCIES					
		First	Second	Third	Fourth	Fifth	Sixth
55.	Did the (1st ...) pregnancy occur while using some method of birth control?	Y N	Y N	Y N	Y N	Y N	Y N
56.	If Yes: What method?	_____	_____	_____	_____	_____	_____
57.	If No: Did you stop using a method to become pregnant?	Y N	Y N	Y N	Y N	Y N	Y N
58.	If yes to Q 57. How many months did it take you to become pregnant?	_____ Mons.	_____ Mons.	_____ Mons.	_____ Mons.	_____ Mons.	_____ Mons.
59.	In what month and year did the 1st ...) pregnancy end? (If pregnancy is current ask when baby is due and GO ON TO Q 60)	_____ Mon. 19__	_____ Mon. 19__	_____ Mon. 19__	_____ Mon. 19__	_____ Mon. 19__	_____ Mon. 19__
60.	What was the length of the pregnancy?	_____	_____	_____	_____	_____	_____
	CODES	_____	_____	_____	_____	_____	_____
61.	Did you have a baby then, i.e., did it cry after birth? If No Skip to instructions preceeding Q 67	Y N	Y N	Y N	Y N	Y N	Y N
62.	Was it a boy or a girl?	M F	M F	M F	M F	M F	M F
63.	How much did the child weigh at birth?	_____	_____	_____	_____	_____	_____
	CODES	_____	_____	_____	_____	_____	_____
64.	How old was he/she when he/she died?	_____ No/Yrs	_____ No/Yrs	_____ No/Yrs	_____ No/Yrs	_____ No/Yrs	_____ No/Yrs
65.	Would you have preferred this pregnancy: 1. Earlier 2. Later 2. Same time 3. Not at all?	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
66.	Would your husband/partner have preferred this pregnancy: 1. Earlier 2. Later 3. Same time 4. Not at all?	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
	SKIP TO Q 68						
	NOTE: WHEN USING MAIL-BACK OR RANDOM RESPONSE QUESTIONNAIRE, OMIT Q 67.						
67.	What caused the loss of the pregnancy (miscarriage, stillbirth, abortion)?	M S A	M S A	M S A	M S A	M S A	M S A

9

FOR EVER MARRIED WOMEN OR LIVING WITH SOMEONE. (IF SINGLE AND PREGNANT SKIP TO Q 70. IF SINGLE AND NOT PREGNANT SKIP TO Q 82.)

68. Did you ever live separated from your husband/partner during your marriage(s) for a period longer than 3 months?

SKIP TO INSTRUCTIONS PRECEEDING Q 70 - - - - - - -	Yes	1
	No	2

69. For what period?

From	To
_____19__	_____19__
_____19__	_____19__
_____19__	_____19__
_____19__	_____19__

ASK QQ 70 TO 81 IF R IS CURRENTLY PREGNANT (AS INDICATED BY Q 59)

70. Are you hoping for a girl or a boy?

Girl	1
Boy	2
Either	3

71. Is your husband/partner hoping for a girl or a boy?

Girl	1
Boy	2
Either	3

72. How many more children do you want to bear in addition to the one you are now expecting?

IF NONE SKIP TO Q 74 - - - _____

73. How many years from now do you want to have your next child?

SKIP TO Q 79 - - - _____

74. Would you have more children if day care services were inexpensive and readily available?

Yes	1
No	2
Don't know	3

75. Would you have more children if your annual income was increased by $2,000 (that is without a raise in taxes or increased working hours)?

SKIP TO Q 77 - - -

Yes	1
No	2
Don't know	3

76. What would you now do with the extra money?

01 buy a car
02 go on a vacation
03 invest or save the money
04 pay debts
Other _____ _____

77. Would you have preferred to have borne fewer children?
SKIP TO Q 79 - - - - - - - - - - - Yes 1
No 2

78. How many in all would you like to have borne?
_____

79. How many (more) children do you think your husband/partner wants you to bear in addition to the one you are now expecting?
IF ONE OR MORE SKIP TO Q 101
_____

80. Would he prefer you to have borne fewer children in all?
Definitely yes 1
Probably yes 2
SKIP TO Q 101 - - - Probably no 3
SKIP TO Q 101 - - - Definitely no 4
SKIP TO Q 101 - - - Don't know 5

81. How many would he prefer you to have borne?
SKIP TO Q 101 - - - _____

FOR RESPONDENTS WHO ARE NOT CURRENTLY PREGNANT

82. Have you had an operation which makes it impossible for you to become a mother in the future?
SKIP TO Q 85 - - - - - - - - - - - Yes 1
No 2

83. In what year did that operation occur?
19____

84. Was that operation done at least partly so that you would never become pregnant again?
SKIP TO Q 86 IF CURRENTLY MARRIED OR SKIP TO Q 105 IF NOT CURRENTLY MARRIED
Yes 1
No 2

85. Some women are unable to have a child because they have some physical or medical problem or perhaps because they have reached their change of life. Do you think this may be the case for you?

SKIP TO Q 105 IF NOT CURRENTLY MARRIED OR NOT LIVING WITH SOMEONE

Yes 1
No 2
Uncertain 3

FOR RESPONDENTS CURRENTLY MARRIED (OR LIVING WITH SOMEONE) AND NOT PREGNANT

86. Has your husband/partner ever had an operation which makes it impossible for him to become a father in the future?

SKIP TO INSTRUCTIONS PRECEEDING Q 89 - - - - - - - - -

Yes 1
No 2

87. What was the year of that operation?

19_____

88. Was that operation done at least partly so you would never become pregnant again?

SKIP TO Q 96 - - - - - - - - - - -

Yes 1

SKIP TO Q 96 - - - - - - - - - - -

No 2

IF RESPONDENT AND HUSBAND/PARTNER ARE BOTH ABLE TO HAVE CHILDREN (NO TO Q 82 + 86) ASK: QQ 89 - 100. IF ONE OR BOTH ARE NOT ABLE TO HAVE CHILDREN SKIP TO Q 101.

89. Do you want to give birth to (a, another) child?

Yes 1

SKIP TO Q 93 - - - - - - - - - - -

No 2

SKIP TO Q 93 - - - - - - - - - - -

Don't know 3

90. Would you prefer a girl or a boy (next time)?

Girl 1
Boy 2
Either 3

91. How many (more) children would you like to have?

_____

92. How many years from now do you want to have the (next) one?

SKIP TO Q 98 - - -

_____

93. Would you have (more) children if day care services were inexpensive and readily available?

Yes	1
No	2
Don't know	3

94. Would you have (more) children if your annual income was increased by $2,000 (that is without a raise in taxes or increased working hours)?

SKIP TO Q 96 - - -

Yes	1
No	2
Don't know	3

95. What would you now do with the extra money?

01 buy a car
02 go on a vacation
03 invest or save the money
04 pay debts
Other _____

96. Would you prefer to have borne fewer children?

Yes	1
SKIP TO Q 98 - - - - - - - - - - - No	2

97. How many in all would you like to have borne?

_____

98. How many (more) children do you think your husband/partner wants you to give birth to?

_____

99. Would he prefer you to have borne fewer children in all?

Definitely yes	1
Probably yes	2
SKIP TO Q 101 - - - Probably no	3
SKIP TO Q 101 - - - Definitely no	4
SKIP TO Q 101 - - - Don't know	5

100. How many would he prefer you to have borne?

_____

FOR MARRIED (OR LIVING WITH SOMEONE), SEPARATED, DIVORCED, OR WIDOWED RESPONDENTS (PREGNANT OR NOT)

101. If you could start life over again, at what age would you prefer to marry (or begin living with someone)?

_____

102. Did you have any idea about how many children you wanted when you first married?

Yes	1
SKIP TO Q 104 - - - No	2
SKIP TO Q 104 - - - Can't remember	3

103. How many girls and how many boys did you want?

Girls _____
Boys _____
Either _____

104. Did you have any discussion at the time of your marriage with your (present/last) husband on the number of children he wanted?

Yes	1
No	2
Can't remember	3

105. If you could now choose exactly the number of children to have altogether in your lifetime, how many girls and how many boys would you choose?

Girls _____
Boys _____
Either _____

106. How many girls and boys do you think your (present/last) husband/partner would choose?

Girls _____
Boys _____
Either _____

107. Sometime soon couples will be able to choose in advance whether they would like to give birth to a boy or a girl. Would you like to do this?

Yes	1
No	2
Don't know	3

108. What do you think is the desirable number of children for people in your social and economic circumstances?

_____

109. What do you think is the ideal age for a woman to have her first child?

_____

110. And what is the ideal age for her to have her last child?

_____

111. In your opinion how many years or months should there ideally be between children? (If different times given take average).

Years _____
Mons. _____

112. Do you expect to live with one of your children in your old age?

Yes	1
No	2
Don't know	3

ALL RESPONDENTS

113. Who do you feel should decide the number of children a woman will have?

Woman	1
Husband or partner	2
Both	3
Will happen without decision	4

Other (specify) _____

114. What do you think is the ideal number of children for the average Canadian family today?

_____

115. How many children would there be in a Canadian family before you would say there are too many?

_____

116. What is your attitude towards couples that decide not to have children?

Understanding	1
Envy	2
No opinion	3
Disapproval	4

Other _____

_____

117. Many couples use some method of birth control to delay or prevent a pregnancy. Do you approve or disapprove of such conduct?

Approve	1
SKIP TO Q 119 - - - Disapprove	2
SKIP TO Q 121 - - - Neither approve or disapprove	3

15

118. Here is a card with two lists of reasons. Which is the most important reason for your approval in each list?

So that the couple can have the number of sons and daughters they want	1	Small population is good for Canada	6
The couple does not want to have children	2	The government will not have to build as many schools and hospitals	7
So that the woman can work	3	Our natural resources will last longer	8
So that the couple can have their children when they want them	4	Less unemployment with fewer labourers	9
Health of the mother	5	Human beings ought to be able to decide their fate themselves	10
Other _____	SKIP TO Q 121	Other _____	

119. Here is a card with two lists of reasons. Which is the most important reason for your disapproval in each list?

Against religion	1	Large population good for Canada	7
Immoral	2	We need people to develop Canada's natural resources	8
Harmful to health	3	Industries are more efficient when producing for a larger population	9
Too much trouble	4	Less unemployment with more consumers	10
Too expensive	5		
Large family desirable	6		
Other _____		Other _____	

120. Do you approve of the rhythm method?

Yes	1
No	2
Don't know	3

IF R IS NOT MARRIED OR LIVING WITH SOMEONE SKIP TO Q 122

121. Does your husband/partner approve or disapprove of birth control?

Approve	1
Disapprove	2
Don't know	3

122. When do you think is the greatest risk of getting pregnant during the menstrual cycle?

(CIRCLE AS MANY AS GIVEN BY R)

During menstruation	1
During the days preceeding menstruation	2
During the days after menstruation	3
During the mid period of cycle	4
Don't know	5

16

RECORD ANSWERS FOR QQ 123, 124, 126 IN CONTRACEPTIVE CHART BELOW

123. What methods have you heard about that are used by couples to delay or prevent pregnancy?

124. "Here is a card with the names of methods couples use to delay or prevent having a child."

Which methods do you know how to use? You may tell me by number if you wish.

125. In your opinion which method is the most effective (other than abstinence)? One choice. _____

126. What method or methods do you think you or your partner may use in the future?

CONTRACEPTIVE CHART

Method	Q 123 Heard About	Q 124 Know How to Use	Q 126 Future Use
1. Abstinence	1	1	1
2. Rhythm (safe period)	2	2	2
3. Withdrawal	3	3	3
4. Douche	4	4	4
5. Breast feeding	5	5	5
6. Condom (safe)	6	6	6
7. Diaphragm (cap)	7	7	7
8. Foam	8	8	8
9. Jelly or Cream	9	9	9
10. Suppositories	10	10	10
11. Tampon or Sponge	11	11	11
12. IUD (coil, loop, etc.)	12	12	12
13. Pill	13	13	13
14. Injection	14	14	14
15. Male sterilization (vasectomy)	15	15	15
16. Female sterilization (tubal ligation)	16	16	16
17. Abortion	17	17	17
18. Other _____ _____(specify)	18	18	18
19. None	19	19	19

NOTE: IF THE RESPONDENT IS SINGLE AND WHEN USING THE RANDOM RESPONSE OR MAIL-BACK QUESTIONNAIRE, SKIP TO Q 130.

127. Using the same list of contraceptive methods please tell me what methods you or your partner used during the following years and what methods you are presently using. Again you can tell me by number.

(HAND R CHART OF YEARS AND RECORD ANSWERS ON USAGE CHART)

USAGE CHART

Between Event and Event (Code)	____	____	____	____	____	____	____	____
	____	____	____	____	____	____	____	____
	____	____	____	____	____	____	____	____
Method	1933-1944	1945-1954	1955-1959	1960-1964	1965-1967	1968-1969	1970-1971	1972-Current
1. Abstinence	1	1	1	1	1	1	1	1
2. Rhythm (safe period)	2	2	2	2	2	2	2	2
3. Withdrawal	3	3	3	3	3	3	3	3
4. Douche	4	4	4	4	4	4	4	4
5. Breast feeding	5	5	5	5	5	5	5	5
6. Condom (safe)	6	6	6	6	6	6	6	6
7. Diaphragm	7	7	7	7	7	7	7	7
8. Foam	8	8	8	8	8	8	8	8
9. Jelly or Cream	9	9	9	9	9	9	9	9
10. Suppositories	10	10	10	10	10	10	10	10
11. Tampon or Sponge	11	11	11	11	11	11	11	11
12. IUD (coil, loop, etc.)	12	12	12	12	12	12	12	12
13. Pill	13	13	13	13	13	13	13	13
14. Injection	14	14	14	14	14	14	14	14
15. Male Sterilization (vasectomy)	15	15	15	15	15	15	15	15
16. Female sterilization (tubal ligation)	16	16	16	16	16	16	16	16
17. Abortion	17	17	17	17	17	17	17	17
18. Other _____ _____(specify)	18	18	18	18	18	18	18	18
19. None used	19	19	19	19	19	19	19	19

IF NO METHOD EVER USED SKIP TO Q 130

128. In cases where R has replied that she and/or her partner has used more than one method in any time interval ask:

During _____
(insert appropriate years)
which method was used the most?

(Record answers by circling the method twice in the usage chart.)

127. Using the same list of contraceptive methods please tell me what methods you or your partner used during the following years and what methods you are presently using. Again you can tell me by number.

(HAND R CHART OF YEARS AND RECORD ANSWERS ON USAGE CHART)

USAGE CHART

Between Event and Event (Code)

Method	1933-1944	1945-1954	1955-1959	1960-1964	1965-1967	1968-1969	1970-1971	1972-Current
1. Abstinence	1	1	1	1	1	1	1	1
2. Rhythm (safe period)	2	2	2	2	2	2	2	2
3. Withdrawal	3	3	3	3	3	3	3	3
4. Douche	4	4	4	4	4	4	4	4
5. Breast feeding	5	5	5	5	5	5	5	5
6. Condom (safe)	6	6	6	6	6	6	6	6
7. Diaphragm	7	7	7	7	7	7	7	7
8. Foam	8	8	8	8	8	8	8	8
9. Jelly or Cream	9	9	9	9	9	9	9	9
10. Suppositories	10	10	10	10	10	10	10	10
11. Tampon or Sponge	11	11	11	11	11	11	11	11
12. IUD (coil, loop, etc.)	12	12	12	12	12	12	12	12
13. Pill	13	13	13	13	13	13	13	13
14. Injection	14	14	14	14	14	14	14	14
15. Male Sterilization (vasectomy)	15	15	15	15	15	15	15	15
16. Female sterilization (tubal ligation)	16	16	16	16	16	16	16	16
17. Abortion	17	17	17	17	17	17	17	17
18. Other _____ (specify)	18	18	18	18	18	18	18	18
19. None used	19	19	19	19	19	19	19	19

IF NO METHOD EVER USED SKIP TO Q 130

128. In cases where R has replied that she and/or her partner has used more than one method in any time interval ask:

During _____ (insert appropriate years) which method was used the most?

(Record answers by circling the method twice in the usage chart.)

129. For each method that R has stopped using ask for each:

	Method	Reasons (use codes or specify other)
Why did you stop using	_____	_____
Why did you stop using	_____	_____
Why did you stop using	_____	_____
Why did you stop using	_____	_____
Why did you stop using	_____	_____

Reasons:

01 To become pregnant
02 Heard about side effects
03 Experienced side effects
04 Inconvenient for me
05 Inconvenient for partner
06 Menopause
07 Sterility
08 Religious reasons
09 Moral reasons
10 Not having intercourse
11 Concern with effectiveness
12 Doctor's recommendation

IF R NO LONGER NEEDS BIRTH CONTROL (i.e. because of sterilization, menopause, etc.) SKIP TO Q 138

IF R HAS NOT USED THE PILL ASK:

130. Would you consider using the pill?

SKIP TO Q 132 - - -	Don't know	1
SKIP TO Q 132 - - -	Yes	2
	No	3

131. Why not?

Hazardous to health	1
Moral or religious reasons	2
Inconvenient to use	3

Other _____

_____(specify)

IF R HAS NOT USED THE IUD ASK

132. Would you consider using the IUD if it were inexpensive and easy to obtain?

SKIP TO Q 134 - - - Don't know 1
SKIP TO Q 134 - - - Yes 2
No 3

133. Why not?

Hazardous to health 1
Moral or religious reasons 2
Inconvenient to use 3

Other _____

_____(specify)

134. Would you consider having your tubes tied if this were easy and inexpensive to have done?

SKIP TO Q 136 - - - Don't know 1
SKIP TO Q 136 - - - Yes 2
No 3

135. Why not?

Hazardous to health 1
Moral or religious reasons 2
Might want more children later 3
Interfere with sexual relations 4

Other _____

_____(specify)

IF MARRIED OR LIVING WITH SOMEONE ASK: Q 136. IF NOT SKIP TO Q 138

136. Would your partner consider having an operation to prevent pregnancy?

SKIP TO Q 138 - - Don't know 1
SKIP TO Q 138 - - Yes 2
No 3

137. Why not?

Hazardous to health 1
Moral or religious reasons 2
Might want more children later 3
Interfere with sexual relations 4

Other _____

_____(specify)

138. Where do you obtain most of your information on birth control? One choice.

01 Mother
02 Father
03 Husband or partner
04 Other relatives
05 School
06 Friends & Neighbors
07 Doctor or Nurse
08 Family Planning or Birth Control Clinic
09 Marriage Advisory Centre
10 Religious Advisory Committee
11 Newspapers or Magazines
12 Books
13 Radio
14 T.V.
15 Films
16 No Information
Other _____

139. If a couple decides on sterilization in order to prevent unwanted children should it be the man or the woman who gets sterilized?	Man	1
	Woman	2
	Don't know	3
	Not applicable	4
140. Do you think that our government should make it their business to spread birth control information?	Yes	1
	No	2
	Don't know	3
141. Do you think our government should help make contraception available to people who want it?	Yes	1
	No	2
	Don't know	3
142. Do you think the government of Canada should help other countries with their birth control programs if they ask us?	Yes	1
	No	2
	Don't know	3
143. Do you think the government of Canada should only give aid to those countries that have birth control programs?	Yes	1
	No	2
	Don't know	3

144.	Do you think we should change our laws to discourage couples from having large families? For example, laws referring to income tax exemptions, family allowance and housing priorities.	Yes No Don't know	1 2 3
145.	Should our laws be changed to improve living conditions for larger families?	Yes No Don't know	1 2 3
146.	Do you believe birth control education should be given in high schools?	Yes No Don't know	1 2 3
147.	Do you feel that contraceptives should be made readily available to unmarried persons age 18 or more?	Yes No Don't know	1 2 3
148.	To those aged 16 to 18?	Yes No Don't know	1 2 3
149.	What is your general feeling toward an unmarried woman who has a child and keeps it? Other _____	Sympathy Support Condemnation Indifference	1 2 3 4
150.	What is your general feeling toward an unmarried woman who has a child and gives it up for adoption? Other _____	Sympathy Support Condemnation Indifference	1 2 3 4
151.	Have you ever personally known: an unmarried woman who has had a child and kept it?	Yes No	1 2
152.	And an unmarried woman who has had a child and given it up for adoption?	Yes No	1 2
153.	Should there be additional taxation exemptions in order to make the lot of a single parent easier?	Yes No Don't know	1 2 3

154. As you know, many women choose to end a pregnancy by having an abortion. Out of 100 women you might see on the street, about how many of them would you guess have wanted at some time to get an abortion?

(ALSO WRITE ANSWER INTO BLANK IN Q 155)

_____

155. About how many of these _____ women would you guess have actually had an abortion?

_____

156. Do you think that there should be a law which prohibits abortion - the deliberate interruption of a pregnancy - except when the woman's life is in danger, or do you think that women should be able to obtain a legal abortion if they want one?

Law prohibiting abortion 1
Be able to obtain a legal abortion 2

Other _____

_____(specify)

157. If you became pregnant and abortions were legal and available would you have an abortion under the following conditions?

	Yes	No	Don't Know
- if the pregnancy seriously endangered your physical health?	1	2	3
- if the child was likely to be abnormal?	1	2	3
- if you were unmarried?	1	2	3
- if you had been raped?	1	2	3
- if you could not afford another child?	1	2	3
- if you had all the children you wanted?	1	2	3
- if it would interfere with your career?	1	2	3
- if your husband seriously objected to the child?	1	2	3

158. Do you think the government should help make abortion available to women who want it?

Yes under any circumstance 1
No under no circumstance 2
Don't know 3
Depends on circumstance 4

IF RESPONDENT WAS NEVER MARRIED AND NOT LIVING WITH SOMEONE SKIP TO Q 194

"I would now like to ask some questions about your present/last husband or partner."

159. In what year was your husband born? 19_____

160. What province or country was he born in?

01 Nfld.	05 Que.	09 Alta.	
02 P.E.I.	06 Ont.	10 B.C.	
03 N.S.	07 Man.	11 Yukon	SKIP TO
04 N.B.	08 Sask.	12 N.W.T.	Q 162
13 U.K.	16 Poland	19 France	
14 Germ.	17 Ireland	20 Ukraine	
15 Italy	18 U.S.A.		

Other _____(specify)

161. In what year did he first immigrate to Canada? 19_____

162. Were your husband's parents born in Canada?

1. Both were 3. Mother only
2. Neither were 4. Father only

163. How long has/did he live(d) in Edmonton? All life ___ # of yrs. _____

164. How many sons and daughters did your husband's parents have? Sons 1+ _____ Daughters _____

165. What was the highest grade or year of elementary or secondary school your husband ever attended? SKIP TO Q 167 - - - None 0 Yr. or Grade 1 2 3 4 5 6 7 8 9 10 11 12 13

166. How many years of schooling did he have since (elementary or secondary) school? University 0 1 2 3 4 5 6 +

Other 0 1 2 3 +

EVER MARRIED RESPONDENTS

167. What is/was your husband's religion or denomination?

01 Anglican	07 Pentecostal
02 Baptist	08 Presbyterian
03 Greek Orthodox	09 Roman Catholic
04 Jewish	10 Salvation Army
05 Lutheran	11 Ukrainian Catholic
06 Mennonite	12 United Church
00 None	

Other _____(specify)

168. To what ethnic or cultural group did your husband or his ancestor (on the male side) belong on coming to this continent?

01 English	08 Native Indian-Non-Band
02 French	09 Netherlands
03 German	10 Norwegian
04 Irish	11 Polish
05 Italian	12 Scottish
06 Jewish	13 Ukrainian
07 Native Indian-Band	

IF RESPONDENT IS NOT CURRENTLY MARRIED ASK Q 169 AND 170. IF CURRENTLY MARRIED SKIP TO Q 171.

169. Here is a card showing amounts of income. Please indicate by number what group would apply to your income before taxes in 1973? _____

170. What was your or your family's annual income for each of the following years?

	Don't Know	Refused to Answer	Question Not Applicable	Own Income or Family Income	
1970 _____	1	2	3	OI	FI
1967 _____	1	2	3	OI	FI
1964 _____	1	2	3	OI	FI
1961 _____	1	2	3	OI	FI

SKIP TO Q 194

171. Is your husband gainfully employed at present? SKIP TO Q 173 - -

Yes 1
No 2

172. Is he:

a student 1
unemployed 2
retired 3
an unpaid family worker 4

Other _____(specify)

173. During the last twelve months how many weeks was he gainfully employed?

_____

174. What type of work does/did he do?

_____
(obtain specific information)

_____
(reserved for coding)

175. Here is a card showing amounts of income. Please indicate by number what group would apply to your husband's income before taxes in 1973?

_____
Don't know 1
Refused to answer 2

176. What group would apply to your income before taxes in 1973?

_____
Don't know 1
Refused to answer 2

177. Which group would the total income of your family fall into for 1973? (Before taxes)

_____
Don't know 1
Refused to answer 2

178. What was your family's annual income for each of the following years?

	Don't Know	Refused to Answer	Question Not Applicable
1970 _____	1	2	3
1967 _____	1	2	3
1964 _____	1	2	3
1961 _____	1	2	3

179. When did you and your present husband or partner start living together? _____19_____

180. How old were you at the time? _____

181. How old was he at the time? _____

182. Have you been married more than once? Yes 1; No 2 — SKIP TO Q 190 - - -

183. How many times have you been married altogether? _____

		First	Second	Third	Fourth
184. When did your (1st, 2nd...) marriage begin?	Yr	19__	19__	19__	19__
185. How old were you at that time?	Age	____	____	____	____
186. How old was he at that time?	Age	____	____	____	____
187. How did the marriage end? 1. Death 2. Divorce 3. Other		1 2 3	1 2 3	1 2 3	1 2 3

If Death:

188. When did he die?	Yr	19__	19__	19__	19__

If Divorce or Other:

189. When did you stop living together?	Yr	19__	19__	19__	19__

190. Suppose your husband/partner lost his job tomorrow and neither he nor you could find work for one month. Do you feel that you could manage to pay all your usual bills for that month out of the family savings?

Yes 1
No 2
Don't know 3

191. How often do you deny yourself and your family things you and they would like because of provisions you are making for the future? Would you say: (READ CATEGORIES)

Often 1
Sometimes 2
Seldom or Never 3

192.	How about your husband/partner, how often does he do this? Would you say: (READ CATEGORIES)		Often Sometimes Seldom or Never	1 2 3
193.	In general what kind of success do you feel you and your husband/ partner are having financially? (READ CATEGORIES)		Very good Good Fair Poor	1 2 3 4

FOR ALL RESPONDENTS

194.	Would you (and your partner) be willing to provide the major source of financial support if your child was attending post secondary education?	SKIP TO Q 196 - - -	Yes No Don't know	1 2 3
195.	How much, if any, would you be willing to contribute?	IF NONE SKIP TO Q 197	_____	
196.	How long would you be willing to contribute this support?		_____ (Years)	
197.	Whatever it is you feel you want out of life, how closely do you feel that you are approaching it?		Very closely Fairly closely Only to some extent Not at all	1 2 3 4

OPINIONS

We would like to get your opinion on some matters concerning family life and the status and rights of women. Please tell me if you strongly agree, agree, don't know, disagree, or strongly disagree with the following statements. The first is:

		Strongly Agree	Agree	Depends on Circumstances Uncertain Don't Know	Disagree	Strongly Disagree
		(CIRCLE NUMBER)				
198.	A man can make long range plans for his life, but a woman has to take things as they come.	1	2	3	4	5
199.	A pre-school child is likely to suffer if his mother works.	1	2	3	4	5
200.	A working mother can establish just as warm and secure a relationship with her children of elementary school age as a mother who does not work.	1	2	3	4	5
201.	It is much better for everyone involved if the man is the achiever outside the home and the woman takes care of the home and family.	1	2	3	4	5
202.	If a woman wants a career, she should space the children to suit the career or not have any children at all.	1	2	3	4	5
203.	Women are much happier if they stay at home and take care of their children.	1	2	3	4	5
204.	Young girls are entitled to as much independence as young boys.	1	2	3	4	5
205.	Sex seems to exist mainly for the man's pleasure.	1	2	3	4	5

		Strongly Agree	Agree	Depends on Circumstances Uncertain Don't Know (CIRCLE NUMBER)	Disagree	Strongly Disagree
206.	Women should be considered as seriously as men for jobs as executives or politicians.	1	2	3	4	5
207.	If anything serious happened to one of the children while the mother was working, she could never forgive herself.	1	2	3	4	5
208.	A woman's job should be kept open for her when she is having a baby.	1	2	3	4	5
209.	You usually find the happiest families are those with a large number of children.	1	2	3	4	5
210.	Many of those in women's rights organizations today seem to be unhappy misfits.	1	2	3	4	5
211.	There should be free child-care centers so that women could take jobs.	1	2	3	4	5
212.	The world population problem is serious.	1	2	3	4	5
213.	Canada's immigration laws are too lax and admit too many people unsuited to our culture.	1	2	3	4	5
213a.	Women in authority should have the right to fire men.	1	2	3	4	5

"We would like to record a few characteristics of your home".

214. Do you have a colored T.V.?
- Yes 1
- No 2

215. Do you have a dishwasher?
- Yes 1
- No 2

216. Two or more cars?
- Yes 1
- No 2

217. What is the number of rooms in your home? (excluding bathrooms, clothes closets, pantries, halls and rooms solely used for business purposes) _____

218. How many books would you say you have? 10, 25, 50, 100 ... _____

(INTERVIEWER: FILL IN)

219. (IF R REFUSED TO GIVE TOTAL FAMILY INCOME) Estimate total family income for 1973. _____ ESTIMATED INCOME

220. Respondent's cooperation was:
- Very good 1
- Good 2
- Fair 3
- Poor 4

221. Other persons present at interview were:

(CIRCLE AS MANY AS NECESSARY)

NO. OF PEOPLE PRESENT: _____
- No one 1
- Children under 6 2
- Older children 3
- Husband 4
- Other relatives 5
- Other adults 6

222. Is this interview of questionable quality?
- FILL IN Q 223 - - - Questionable quality 1
- SKIP TO COMMENTS - - Generally adequate 2
- SKIP TO COMMENTS - - High quality 3

223. (IF "QUESTIONABLE QUALITY") Reason for this:
- Spoke English poorly 1
- Evasive, suspicious 2
- Drunk, mentally disturbed 3
- Had poor hearing or vision 4
- Low intelligence 5
- Confused by frequent interruptions 6
- Bored or uninterested 7

TURN NOW TO BACK COVER

RECORD OF CALLS

Call Number	Date	Time of Call	Results (Household Absent, Address Dead, Refusal, Other... / Completed, No One Eligible, Selected Person Unavailable)

COMMENTS: Please note anything essential to the interpretation of this interview.

Language of Interview? _____

Time at end of interview: _____

Length of interview (omitting major interruptions): _____

_____
Signature of Interviewer

_____
Interviewer Number